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ABSTRACT

Papers on new developments in vocational-technical education in Britain include: the polytechnic, its academic board and organizational structure (J.V. Pepper, M. Emerson); the development of polytechnic courses: an analysis of the steps to be taken within the school to begin a new course (J.A. Sandbach); course validation and approval: the inspectorate (P.D. Dudley); course validation and approval: the Council for National Academic Awards (A.M. Ridler); determination of course costs (K.C. Stephenson); control of the allocation of resources (N.T. Bloomer); staff development practice (I.W. Hannaford); the costing and control of polytechnic research (D.W.F. James); some aspects of polytechnic research (R. Sturt); the Department of Education and Science and polytechnic building project (R.E. James). (MSE)

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Coombe Lodge Report

Vol 7 No. 5

Study Conference 74/11

Polytechnic Developments

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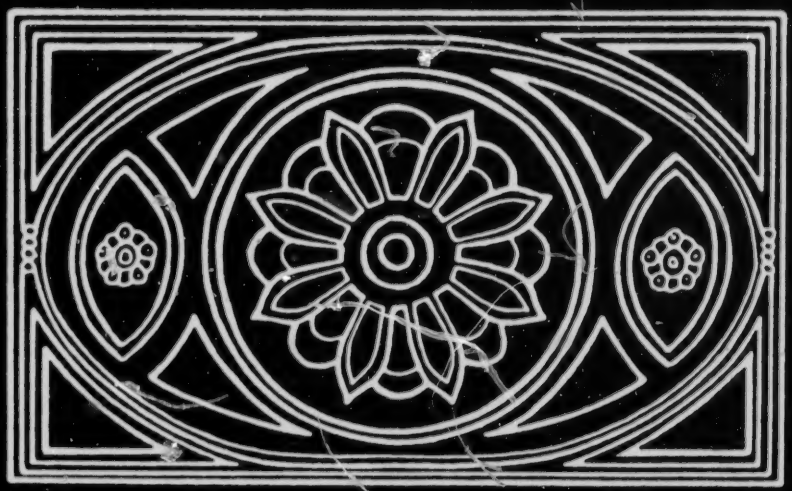

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FOREWORD

Envisaged as a study conference for comparatively in experienced members of academic boards, participants included polytechnic staff at many different levels of seniority.

Numerous types of development taking place in these institutions were studies, with papers being presented by eleven visiting speakers in addition to the visiting tutor. Among the subjects considered were academic government and org anisational structure; course costs, development, validation, and approval; resource control; staff development; research; and building projects viewed from both the DES aspect and an internal point of view.

Members broke into syndicate groups to discuss certain topics in detail and in a final plenary session they reported their findings to Dr. R M W Rickett, Director of Middlesex Polytechnic.

J V Pepper,
Head of Department
of Mathematics
North-East
London Polytechnic.

THE POLYTECHNIC, ITS ACADEMIC BOARD AND ORGANISATIONAL STRUCTURE (I)

polytechnic purposes and framework for pursuing them

"The primary purposes of a polytechnic are teaching and learning. All other activities should be in support of this, and have no other justification than the support they give directly or indirectly to these purposes.

Most polytechnics have a clearly stated or at least implied agreement that they should be managed by their Governors, Directors and Academic Boards. This tripartite structure, which arises from the DES intentions of 1967, must have the aims I have just mentioned, and its elements will usually be autonomous within certain clearly or, more often, not so clearly defined areas, and subject only to certain powers reserved to the Authority, such as approval of estimates. Obviously, national constraints will also have to be complied with, albeit often unwillingly.

In this talk I am primarily interested in the grey area where demarcation disputes may arise in either of the forms "Who does what?" and "Who rules whom?" This is sometimes thought to be an unseemly area to probe, either because of reticence in bringing contentious matters into the open, or because some people feel that if such questions are ignored they will go away. I do not believe that either view will in the long run help the primary purposes of the polytechnic mentioned above. Of course, it has to be frankly admitted that people will differ in their views on how agreed goals may be reached, not to mention the fact that agreement on the goals themselves may not always be easy. But in these situations it is important to have rules and procedures - that is, an agreed framework within which discussions on these questions may proceed. And, of course, the setting up of such a framework may itself not be easy, although, in my view, time spent on it can be well repaid in terms of realising the purposes of the institution.

Conflict Areas

teachers and administration

In my experience the structure of the polytechnics is rather well designed to produce a conflict between the teacher and the administration. The teachers (and students), via the Academic Board and its various committees, propose various plans of academic development in terms of courses, examinations, admissions, and so on. This naturally leads to requirements in terms of resources of various types: staff (both teaching and non-teaching), accommodation, and equipment. In most polytechnics, however, these resource areas, which of course have extensive financial implications, are not regarded as being matters which the Academic Board and its committees can determine. In some places the Director seeks the advice of staff on a representative basis, either within the Boards' structure or not, and this is called "the democratisation of advice"; in others the cards are still held rather close to the chests of a very few people.

One argument I have heard is that because estimates may be initially formed under the direction of the Director this in itself means that the allocation within virement headings subsequently can only be done by the Director. But these are two distinct matters, and the non sequitur is quite remarkable. Again, financial rules made under an Article of Government have been thought to override the Articles themselves, despite clauses to the contrary which say that such rules are subject to the Articles. In this situation a Director finds himself placed so that only the dubious doctrine that he is in effect a local authority chief officer may protect him. These financial matters penetrate everywhere - departmental capitation, costs for course and conference attendance, research projects, minor works and decoration - nothing is too serious or too trivial to be excluded.

appointments and promotions

Staff appointments and promotions form an area where difficulties may arise. I do not refer entirely to who is appointed or promoted, although this is a key area in the maintenance and improvement of standards and the balance of interests. I refer to procedures, and this includes the question of the creation, deferment and abolition of posts. In some polytechnics, most appointments are entirely in the hands of the selection panels as set up within procedures approved by the Governors, and the panels are usually chaired by the Director or his nominee. This seems to me to be a reasonable and acceptable way of proceeding. In other places, the Director explicitly or otherwise reserves the final decision or veto; this is a position which it will be increasingly difficult to preserve, and is already out of keeping with the standing of established institutions at this level. I know of one polytechnic where appointment and promotion procedures have not been approved by the Governors after four years, despite their statutory duty to do so. I have heard of more than one institution where appointments and promotions are subject to no properly laid down procedure. Plainly such situations of uncertainty breed the lack of confidence among staff which can be so corrosive of morale.

establishment

The establishment of posts, both teaching and non-teaching, is another area where misunderstandings arise. It seems possible that the introduction of SSR based on student full-time equivalent could be made workable and fair. In my experience the figures can be got right to within about 10 per cent (although too much significance should not be paid to the last few per cent). Some difficulties arise when the presumably intended reduction of class contact overall occurs unevenly over the polytechnic and inequities arise between faculties, departments, and courses. Other difficulties, often rather intractable, arise in areas where there is a decline of student numbers. Here it is important for there to be wide and detailed consultations and discussions which can be seen to be fair. Again, an SSR applied to a faculty or department may overlook special areas and requirements, and some flexibility must be seen to be a proper part of the system. Administrators tend to be too rigid in such matters, and, it must be said, teachers can be unrealistic in their expectations, particularly when clearly laid out information and procedures are not easily available to them.

course development

Course development and implementation is, of course, indisputably within the Academic Board remit, and is subject only to a general overall policy of Governors, such as, for example, is included in their power to set up faculties and departments, after consultation, and to determine target figures in outline and the overall balance of work. But it is not unknown for very strong pressures of an unprocedural kind to be put on a Board in these matters, or, indeed, for the Board to be by-passed and the matter dealt within Governors or elsewhere. In my view, the administrative and organisational details and structure of courses are only Governors' concern in very general terms, eg to support the build-up or decline of part-time or postgraduate work or courses in engineering or sociology or whatever. Most Governors, representing as they do a cross-section of the community, do not wish to meddle in these matters which they correctly regard as outside their competence. I do not deny the role of leadership, but this must operate within the legally based structure. Examination Boards are perhaps the most important of any of the institutions in a polytechnic. It is therefore important that they maintain their independence, and that their functions are not, for example, confused with those of course committees.

research

Approval and support for research projects can be a vexed area, touching as it does not only on academic freedom, but also often on resource allocation of various kinds. Again due processes for arriving at decisions must be set up.

"Executive" areas

roles

Many members of a polytechnic find themselves in various roles at different times or even sometimes simultaneously. This leads to difficulties on occasion. On some matters a teacher may formulate policy, on others he does so in committee, on yet others he is advisory, and on others still his job is one of implementation. The dividing lines should be as clear as possible.

administrative support

But it is important that structures to be set up should arise from the academic requirements, and not vice versa, and also that proper allocation of support staff should be made available. It seems, for example, that the basic differences between one polytechnic and another university are not the academic or social ones put forward, or even the depth of pile on the carpet or amount of circulation space in buildings, but the almost complete lack of support which most polytechnic departments and faculties - and central services too - have in administrative terms. It is this which affects and distorts the duties of teaching staff, who are not primarily there to engage in extensive clerking exercises, and it leads to a lot of frustration and inefficiency among staff.

committees

Committee chairmanships are a question in my polytechnic. One of our five main Academic Board committees has an elected chairman who has complained that lack of support from the senior administration has made the work of his committee largely and increasingly ineffective. Two polytechnic officers have a responsibility in the committee's area, and so friction arises, but not as much useful work as might be possible. This example highlights the question of the relation of the legislature and the executive, and I do not think that it is unique throughout the country as a whole.

Conclusion

The brief remarks I have made this evening are not intended to be either comprehensive or conclusive, but simply to bring out a few areas where, if a polytechnic is to be run effectively, co-operative efforts must be made by all concerned and correct procedures established. The restraints of the financial structure, and the autocratic traditions of FE management are in conflict with the natural and just ambitions of the teaching staff who wish to make their contributions to the development of the polytechnics in increasingly diverse areas as was originally intended by the founding fathers.

It is not necessary to suppose, in mentioning these areas of dispute, any lack of faith on the part of anyone involved, although I do think that the question of perceptions of possibilities arises. It is just, as I have suggested earlier, that the structure of and within which the polytechnics have appeared, improved and enlightened though it was intended to be, did not sufficiently ensure a break with earlier traditions in those areas in which this was necessary, or take enough account of the natural development and aspirations of those working in the polytechnics. Whether or not these difficulties will be overcome in the foreseeable future remains, of course, to be seen."

M Emerson,
Dean of John Dalton
Faculty of
Technology,
Manchester
Polytechnic

THE POLYTECHNIC, ITS ACADEMIC BOARD AND ORGANISATIONAL STRUCTURE (II)

"The Report of the CNAA, following a quinquennial visit to my own Polytechnic, crystallises many of the problems which Academic Boards face. The Report was regarded as generally favourable, but among other things some concern was expressed about the effectiveness of the Academic Board and its committees in formulating academic policy and controlling standards. In particular, the Council considered that a re-examination and, where necessary, a re-clarification, of the responsibilities of all the standing committees should be undertaken; more specifically, consideration should be given to ways of achieving fuller participation of non-ex-officio members of academic staff, to allow them to make a greater contribution to academic planning and development.

This commentary raises the major issues of "what the Academic Board actually is and does; what is its constitution; who should serve on it?" I have some cynicism of the way in which many people would like to see Academic Boards act, and the powers they should have - in my view too often related to the individual aspirations of some of its members rather than to the practicability of its functioning. The system under which a polytechnic operates means that rapid decisions have very often to be taken. I will illustrate this with two or three examples.

estimates

Firstly on the matter of estimates a Local Authority may require the Polytechnic to reduce its original proposals. The cut may be, often is, substantial, and the time-scale for deciding where the cuts shall be apportioned to the various non-virement headings is inevitably short. Clearly an Academic Board could not achieve this; it must be a matter for the Director to decide upon. Logically, therefore, the responsibility for raising the estimate must be his. The Academic Board will have influence on the apportionment of estimates but this should occur as an advisory or policy-forming function, rather than as a decision-taking function.

appointments

A second example where speed of action is often essential occurs in the appointment of academic staff. It has been argued that appointments boards should be responsible to the Academic Board: that the membership of such Boards should be subject to nominating procedures of the Academic Board or its sub-committees (such as Faculty or Departmental Boards). Such procedures would in my view lead to a system which would not only be inefficient, but also ineffective.

corporate views

A further example occurs when bodies external to the Polytechnic seek a corporate viewpoint. For example, the Technician Education Council recently circulated a consultative document asking for the views of colleges. The time-scale for formulating views for submission to the Council was less than two months. Is this a matter which the Academic Board can formulate a Polytechnic view on? I believe it should be, but how many Academic Boards can so organise their business to produce a well-argued reply within the time-scale required.

The examples quoted above, and there are very many more, are areas in which an Academic Board, or its committees, would find it difficult to act quickly and decisively in response to a particular situation. Although I have been accused of being paternalistic, it seems to me to be important to operate on a basis of trust. The attitude that justice can only be done if it is seen to be done - and this can only happen if the people involved have been elected by some democratic process, in my view negates trust. Individuals, be they Directors or whoever, must be trusted to act in the right way; adequate control can be exercised by having proper reporting-back facilities.

policy and decisions

The dividing line between the role of an Academic Board or its committees, and the role of an individual, stems from the distinction which needs to be made between the terms "policy-making" and "decision-taking". Boards formulate policies; individuals make decisions. This is something of a generalisation, but a useful maxim when deciding on the respective roles. Often, policies are couched in vague terms. One of the main functions of an Academic Board should be to clarify and state policies in terms which make them capable of unequivocal interpretation.

An example may help to clarify my meaning. Manchester Polytechnic has, as one of its stated aims:

> "to create a sense of equal regard and consideration for all students, degree and non-degree, part-time and full-time."

This may be thought of as a policy, but as stated it gives no indication as to what specific decisions should flow from it. What is required is a re-statement of this in more operational terms. For example, the Academic Board might produce an operational policy which states that it will exert its influence to change the present grants system insofar as it discriminates between degree and non-degree full-time students. It should then decide what action should be taken to implement the policy.

It is this kind of activity that is the proper concern for Academic Boards; to formulate policy and decide on the ways in which the policy should be implemented. In this, its role should not be confused with that of the individual, who is responsible for the decisions flowing from the policy statements - although the Academic Board must clearly have a monitoring system which follows up the policy statements and ensures that they are being effectively carried out.

academic administration

One final point must be made. The functioning of an Academic Board will be as much dependent on having an effective academic administration serving it, as on the membership itself. But how many Academic Board members are sufficiently aware of this? The flow of paper-work, agenda compilations, rules and procedures, etc. are all vital instruments in the working of an Academic Board. Have we given sufficient thought to the quality of administrative staff, for example in terms of remuneration, which we need to attract to Polytechnics, if we are going to develop efficient and effective organisational structures. "

Discussion Arising

role

On the question of the role of the Academic Board, the comment was made that the term "Academic Board" was a misnomer, for the Board often dealt with administrative regulations and details rather than academic policy. Mr.Pepper argued that the dichotomy between the two types of activity was not always clear and often it was detail which finally determined policy. Mr. Emerson felt that the Academic Board should restrict its activities to important policies such as those relating to course structure and student assessment.

appointments

A member suggested that one way to overcome the difficulties of Departmental Boards wishing to nominate people to sit on Appointments Boards would be for a pool of individuals to be nominated by the Departmental Board from which selection could be made by the Dean or Head of Department. Mr. Emerson thought this a valuable suggestion, although it did not overcome the difficulty which arose when there was a need for a particular specialist to sit on the Appointments Board who was not in this pool because it was not always possible to preconceive the kind of staff who would be needed.

size

Differing views were expressed regarding the optimum size of Academic Boards. One member suggested that in order for them to be able to make a worthwhile contribution and respond quickly to circumstance they should be no larger than 12-15 members. Mr. Emerson, on the other hand, felt that the DES requirement that all Heads of Department should be on the Academic Board was sound - collectively the Heads embodied a great deal of wisdom and knowledge of the system, probably more so then any other group, and an Academic Board with all the Heads as members would be more likely to formulate policies capable of implementation because of it.

J A Sandbach,
Assistant Director &
Dean of Faculty
of Technology,
The Wolverhampton
Polytechnic

THE DEVELOPMENT OF POLYTECHNIC COURSES - AN ANALYSIS OF THE STEPS TO BE TAKEN WITHIN A POLYTECHNIC IN ORDER TO MOUNT A NEW COURSE *

"Anyone wishing to start an advanced full-time or sandwich course in a Polytechnic has to obtain the agreement of three main organisations: the Polytechnic itself through its Academic Board, the Department of Education and Science through the agency of the Regional Advisory Councils and the Inspectorate and, usually, an external validating body such as the Council for National Academic Awards through its Subject Boards or other specialist committees.

Steps are seldom taken within the Polytechnic without a look over the shoulder at the DES and CNAA. Each typically takes a toll of between a third and a half of course proposals. I have no information on the number of course proposals rejected by Academic Boards or their Sub-Committees in Polytechnics, but the suspicion is that the number is rather small and should be greater.

open system

Before proceeding to describe and comment upon the process of course development it will probably be helpful if I state my own position in relation to courses of higher education and their development. Briefly it is this. First, because of the comprehensive aims of much of higher education and the long time (some ten to fifteen years) before it is possible to test fully to what extent a student has benefitted from the education he has received, it should be recognised that the system is open, i. e. it is uncontrollable in the sense that a satisfactory feedback mechanism does not exist. It follows that strict M. B. O. methods do not apply to course design. Second, recognition of being in an open system where judgements are more important than planning analyses does not mean that objectives should not be stated, but rather that they will be one of two kinds: unverifiable or secondary. For example, it seems to be a perfectly reasonable statement that a course aims to produce a professional mechanical engineer. But at what stage can one test whether this aim has been achieved? Surely not just after graduation but more likely at some later stage in the graduate's career. More limited, readily assessable educational objectives can be described, but are these all that higher education is about? I think not.

---

*Dr. Sandbach refers in his paper primarily to sandwich and full-time degree courses. (Ed.)

Third, the correct response of individuals and organisations concerned with course development is to allow diversity and, since the prognosis is uncertain, to place the decision with the person who will have to live with it - the student. This opinion leads me to stress the importance of course documents being explicit and communicating effectively with the consumer. Fourth, and finally, diversity can be expensive and the requirement which is placed upon Polytechnics to use resources economically is one that should be accepted. It follows that effective communication with the resource provider is also a proper requirement.

With this position stated, and not forgetting to look over my shoulder at external organisations, let me attempt to analyse the process of course development.

Initiation of a Course

It is convenient to break the development of a course into three stages: Initiation, preparation of outline scheme, preparation of detailed course. In the time I wish to spend on delivering this paper I would like to concentrate on the first two stages, which seem to me to be the more important.

Courses are initiated by individuals in a Polytechnic, by a small group of individuals, by the Polytechnic as a result of consideration of its academic policies, or following suggestions by external bodies.

unplanned initiation

From the point of view of the Polytechnic, the first two sources for a course may be regarded as an involuntary (or unplanned) event. Courses originating in each of the four ways are likely to have characteristic strengths and weaknesses. Their strengths will include coherence, strong commitment of the main staff associated with the course, and probably the availability of most of the resources (i. terms of staff and often, too, the physical resources required) needed to mount the course. Weaknesses may include a failure to analyse the need for the proposal and a course designed for a low demand and little flexibility. Aims may be implicit rather than explicit, supporting subjects may be inadequate and the course may lack broad aims.

deliberate initiation

A Polytechnic which has provided a mechanism for review of its academic development policies (whether by the employment of an Assistant Director for Academic Development, by the establishment of a Curriculum Development Unit or otherwise) will tend to identify gaps in its course patterns and seek to develop new courses as a result. Such courses may be strong on needs analysis and are likely to be designed in an area of demand. They may be less likely to be conceived in terms of traditional academic disciplines, and as a result they may fail to be based upon a group of staff strongly motivated towards making the course a success. Proposals may lack coherence and there may be a large gap between the aims, which are likely to be plausible, and their realisation. They may involve a substantial development of resources including the employment of new staff.

response to external agency

Finally, courses may be developed in response to an external agency. On the face of it these are simple in that the need for the course has been predetermined by the external agency. In practice, however, it seems that a slight scepticism to such approaches may be appropriate. With such a wide range for possible requests for courses it is difficult to generalise as to likely strengths and weaknesses of the course patterns. To restrict comment to the simplest request from an external agency - namely a request for a vocational training of a particular kind - the strengths of the resulting courses are likely to reside in their clear aims and presumably a strong demand for those who successfully complete their studies. Weaknesses may be that the short-term vocational requirements are emphasised, demand for the product may fluctuate unpredictably with a result that the (usually very specialised) resources developed for the course may become redundant after a relatively short time.

To analyse the initiation of a course proposal in this way clearly oversimplifies the process. The most obvious defect is that the normal interactions and overlaps between individual, small group, Polytechnic and external agency initiation have been ignored. Nevertheless, I believe anyone inside or outside the Polytechnic interested in a course proposal will find a study of its real origins almost always revealing, and that if a course proves later to have serious defects, almost always these will have been built in at an early stage.

Preparation of an Outline Proposal

The next stage in course development I earlier described is preparation of an outline course proposal. It is convenient to think of this stage as culminating in a formal approval by the Academic Board, and submission of a proposal on Form 21FE through the Local Education Authority to the Secretary of the Regional Advisory Council and to the Regional Staff Inspector.

The design of an outline course proposal would seem to require attention to the following: an analysis of need for the course, a statement of course aims, an outline curriculum, a study of the potential entrant, and the prospects for the product, the place of the course within the academic programme of the Polytechnic, the resources required, a study of other constraints and the internal arrangements for developing the final proposal.

analysis of need

The definition of needs requires care. For instance, are the needs to be specified in terms of social demand, estimates of the benefits to society, or by means of manpower forecasting? To ask the question in this way may imply that analyses based upon these three differing standpoints will produce different answers. This is not necessarily so, and it would seem possible that the trick of effective course design lies in a reconciliation of the three different viewpoints. There are, of course, severe technical difficulties in each approach, and in a general talk like this we can only note the need for an analysis of need for a course and suggest that an explicit statement of need is a reasonable request to make of a course planning group.

input

Passing quickly over the well-trodden ground of the need for explicit course aims and a course curriculum which illuminates what a student will do, the next point is the need to study the input. Traditionally this has meant a specification of the academic entry requirements and little else, except, perhaps, a look at local competitors in further education, with an eye to Regional Advisory Council considerations.

Study of the potential entrant to a course is an area which seems to offer scope for a more effective analysis. This would include a study of the total number qualified for entry to the course and the capacity of alternative courses as well as the capacity of directly competing courses. Trends are more likely to be revealing than the numbers themselves. Supporting this analysis interviews with students on similar courses, sixth-formers and students in further education, and with their teachers, can be carried out.

graduate prospects

The prospects for the graduates of a course require study. To make this statement is not to accept the proposition that Polytechnic courses should, in principle, be based exclusively or even primarily upon manpower forecasting. Indeed my only observation on this aspect of the preparation of an outline course proposal is on the number of graduates from courses narrowly conceived who do not go on to work in areas for which their specialised studies would appear to fit them. Course planning groups should study what information they can gather in this area.

academic programme

The importance of considering the place of a course within the academic programme of a Polytechnic depends upon one's view of a Polytechnic. It is possible to conceive of a Polytechnic as simply an organisation within which courses are offered. This model emphasises the independence of a course and implicitly of the staff sponsoring it, and places the course in isolation from the academic pattern of the rest of the institution. Perhaps inevitably, in view of my appointment and duties, I find myself stressing the need for course proposers to consider their course in relation to other courses and the general resources, e. g. the library, in the Polytechnic. The difference between academic freedom and simply allowing subject specialists to teach what comes naturally to them is not always easy to discern, but the distinction is a vital one in course development, and closely related to this matter of developing a satisfactory pattern of courses.

resources

Consideration must also be given to the resources required for a new course. A full-time degree course with an entry of 30-40 students will require ten or more teachers. The salaries of ten Polytechnic teachers will total around £40, 000 per annum. Typically staff salaries make up about half of the expenditure in a Polytechnic so that a degree course will cost in the region of £80, 000 per annum excluding the support given to students in the form of grants. It is not surprising therefore, and in my view perfectly proper for questions to be asked about resources for courses. What has concerned me is the separation of resource planning from course development, and the apparently piecemeal and somewhat secretive way in which resource matters are considered regionally and nationally. Form 2IFE is a remarkable

document on which to base public expenditure decisions of around £80,000 each. In my view a better method of course approval in respect of their resource demands is important. In a period of rapid growth the problem tends to get hidden because resources are readily available but if Polytechnics are expected to respond to social needs without necessarily getting bigger and the problem becomes one of resource reallocation rather than allocation, the difficulties will be acute and we will need a much more effective external course approval machinery to help us overcome them. It is accepted that the most important resource specific to a course is the staff who will teach it. This is true in terms of cost, as I have already indicated and I believe it also to be true in terms of the quality of the proposal. It is a relatively simple matter to take an outline curriculum for a course, and with suitable assumptions about the numbers appropriate to the various teaching arrangements envisaged, to calculate the amount of teaching a course of a given intake will generate. This number divided by the average (or the planned average) teaching commitment of a teacher will give the number of teachers needed to mount the course, and therefore the intended student:staff ratio. One quickly discovers how the SSR is sensitive to small variations of group size and the importance of accurate prediction of the loss from each year of a course in estimating its SSR. It is clear that polytechnics are in a phase in their development when they are expected to take in greater numbers of students with a relatively small increase in staff. The need to raise the efficiency of a course brings into prominence the re-direction of the energies of staff into new types of course and possibly new subject areas. In short, attention is focussed onto better staff development policies. To effect these policies will take time. This is an illustration of the difficulty of planning resources within an institution with the present course approval mechanism. Finally on resources, planners of full time courses in many polytechnics need to consider student accommodation. On other constraints I have just one main comment, and that is brief. Constraints always exist but often diminish when one has taken the trouble to be explicit about what one is intending to do, and consulted the right people at the right time.

Finally in this section concerned with the preparation of an outline proposal, the need to plan the further development programme and to decide who will carry it out should be mentioned.

interaction

Apart from placing the analysis of the need for the course first, I have not placed the points in any particular order. They seem to me to interact one with the other and so, as progress is made in one area, changes may be required in others. Of course, an ordered arrangement of dealing with items of business at course planning meetings is needed, but it does not seem possible to state an ideal or "logical" sequence. The process seems to me to be one where refinement is constantly taking place and in my experience all course planning committees go through a phase where little progress is being made and the same ground is gone over again and again.

As greater clarity develops about one aspect changes will be required elsewhere. Planning committees should be prepared to reconsider previous decisions, including of course, the decision to persist with the proposal. Implicit in this view is that preparation of an outline proposal is a continuous process which it is merely convenient to think of as terminating in submission of a 21FE proposal.

Preparation of a Detailed Proposal

From submission of a 21FE proposal formal interactions with external agencies begin and the proposal enters its final phase. Internally, the later stages of preparation seem to me to be essentially a further refinement and elaboration of decisions already taken in principle about the aspects I have previously mentioned. It is true that there are some rather obvious additions such as the preparation of a suitable scheme of assessment, hopefully one matching the course aims and incidentally one which does not take up excessive resources, and the expansion of the curriculum, presumably by the development of "syllabuses". As the likelihood of mounting the course increases, attention will also need to be given to marketing the course. There is, however, one function of the preparation of a detailed submission, the value of which we should not overlook, and that is its "staff development" function. The whole process of course design has important staff development implications, but it is during the preparation of the detailed scheme that the best opportunities arise to forge the essential links between course aims and the approach of the individual teachers.

A Note on Organisations for Course Development

Before I conclude I should like to add a brief word about the internal organisations each Polytechnic appears to have set up to review its own course proposals, and a brief general comment on the organisation of academic development. As at Wolverhampton, the formal agency is usually a committee which is not subject specialised, and which has the task of verifying that Polytechnic policies have been applied and the constraints (real or imaginary) imposed by the external agencies have been considered. The committee will probably give emphasis to any documents supporting a proposal communicating effectively the proposers intentions. The committee is usually "supported" by an individual member of the Directorate responsible for academic development or by a specialised unit concerned with curricular matters, or both, and either or both may have considerable power, a power which often appears to be set against the power of groups of subject specialists.

The establishment of a review mechanism is apparently a common feature of Polytechnic academic organisations, but from my admittedly somewhat restricted viewpoint Polytechnic academic development arrangements seem to be remarkable more for their diversity than their similarity, and this observation suggests that no one organisational solution can claim to offer decisive advantages. This is not intended as an argument for anarchy. I

do hold however, that processing humans in the later stages of adolescence is a complex and somewhat messy business, and a flexible rather than a rigid organisational arrangement is likely to prove more effective.

Conclusion

In this very cursory look at the stages of course development and the brief sideways glance at organisations, I have concentrated on the earlier parts of the development process and suggested that we should play down the importance of organisational thinking. I would hope that the ensuing points would not be disputed:

First, that there is a "business" called course development. Second, that though the methodology of course development is still vague, and there is certainly not a clear "logical" sequence of events in the preparation of a new course in a Polytechnic, there are recognisable but interacting aspects of courses which should be considered. In particular a new course should be created in response to a perceived need, and it should set out to achieve something in relation to the students who it is hoped will enter it. Third, that while the expert designers of Polytechnic courses might be expected to reside in Polytechnics, this business is important and too expensive to leave wholly to experts working in isolation and that others - consumer, financer, and academic colleague - have a part to play.

Discussion Arising

internal validation

Underlining a point made by Mr. Sandbach Mrs. Ridler, of the CNAA, stressed the importance of effective internal validating procedures. It was exasperating for the CNAA to have to examine courses which had not been subject to a full internal enquiry. Occasionally the CNAA was asked to consider courses which did not even have the support of the college. Mr. Sandbach replied that this might occur if the college validating group realised that, being non-specialists in particular subject areas, they might refuse approval of a course which the CNAA would find acceptable. The dangers which might result from internal validating procedures were enumerated by a member. He suggested that the validating group might be an elitist group set up by the academic board who accepted or rejected courses arbitrarily, that they often validated courses at either too early or too late a stage, and that to invite people from outside the polytechnic to sit on the judgement panel was to admit a lack of confidence.

origins of courses

The suggestion was made that the process of courses originating from individuals and small groups would result in the staff development aspect of the translation of aims into teaching programmes becoming a greater priority than the analysis of the need for the course. Mr. Sandbach replied that in his experience some of the best courses emanated from the enthusiasm of individuals. However,

the growing demand for sophisticated, flexible courses would probably lead to courses originating in more general groups. The problem of courses mainly being generated by the stronger faculties within the polytechnic was raised. How could the smaller, less vociferous departments be encouraged to develop courses? In view of the increasingly limited resources available for education, it was suggested that to avoid duplicating courses, there should be an inter-polytechnic reciprocating system and a polytechnic regional coordinating body.

SSRs

On the question of student staff ratios the problem of explaining the need to improve them to those involved in courses such as nursing and art, where they are often very low was raised. Mr. Sandbach felt that the conflict could be reduced by reminding those running these courses that parts of the course could continue with such low SSRs, providing the overall figure was reasonable. He added that there may well be good reasons why some courses should be allowed lower SSRs, and that while he agreed with the principle, it was often interpreted in too simplified a manner.

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COURSE VALIDATION AND APPROVAL - THE INSPECTORATE

"My responsibilities fall into two main areas: Management Studies and General Duties, the latter including some aspects of course approval. This paper touches on three factors involved in course approval procedures: the organisation of Her Majesty's Inspectorate, The Further Education Regulations; and approval procedures.

Organisation of The Inspectorate with particular reference to Further Education

The first Inspectors were appointed by the Privy Council in the first half of the last century when public money was first used to assist elementary education. As the educational system grew so too did the size of the Inspectorate and the administrative services involved in the support of education. The Inspectorate is still appointed by the Privy Council and retains the independence associated with that appointment. The Department of Education and Science which is concerned with the formulation of educational policy bases many decisions on the advice of the Inspectorate. Increasingly in Further Education, the role played by the Inspectorate is advisory and consultative yet it is equally true that the power of inspection remains. This can be of real value for a college since a full inspection provides a major opportunity for the college to discuss its needs and forward thinking with a disinterested body able to advise the local authority and the Department on possible lines of development for the future.

The Inspectorate, ahead of much modern management thinking, has long been organised on a matrix structure. In each of its 10 divisions Inspectors are drawn from a broad range of specialisms representing the main disciplines and industries. The group will work together in a further education committee under the chairmanship of a Regional Staff Inspector. Specialists in specific subject areas from all Divisions also meet together on specialist panels chaired by the specialist subject Staff Inspector. Thus it is easy to bring together a team of colleagues to examine educational problems of either a specialist interest or of an inter-disciplinary type which may involve the broader aspects of educational provision including for example careers advice and buildings.

HMI in the field is able to provide a flow of communication between the bodies with whom he is in contact - the College, the Local Authority, Industrial Training Boards, Professional Bodies and the Department for example.

The specialist inspector in the field will have links with the Staff Inspector responsible for the area of work who chairs the specialist panel and also will work closely with the General Inspector for the College who in Further Education is often also the District Inspector providing the main link between the Local Authorities and the Department. HMI will probably also be associated with the Regional Advisory Council Specialist Committee and directly, and also through the Further Education Committee, with the Regional Staff Inspector. The Regional Staff Inspector himself will take advice from the General Inspector, the District Inspector, the Specialist Inspector and of course the Regional Advisory Council when advanced course approvals are under consideration.

The General Inspector in the field may work with a group of specialists associated with a particular college; with the District Inspector in consultation with the local authority; with the FE Committee chaired by the Regional Staff Inspector for general policy and with the Regional Staff Inspector directly. Each General Inspector is also a Specialist Inspector in a particular subject area or discipline.

In simplistic terms the development of policy may take place in the following cyclic manner: the specialist committee would advise administrators in the Department and in due course policy is formulated. This in turn may be communicated through members of the specialist panel to local authorities and colleges with further dissemination through the general, specialist and District Inspectors and departmental and local short courses and publications. The policy then becomes operational in the service and the feed-back and ideas generated as a result are in turn considered by the specialist panel who can advise the administrator on modifications or further policy developments. Clearly a tremendous amount of input into this cycle obviously also comes from the colleges themselves, from associations, professional bodies and other external sources.

The only executive responsibility of the Inspectorate is that of course approval in which the Regional Staff Inspector acts on behalf of the Secretary of State. It is a role which is not always relished by HMI for it is not always conducive to the development of relationships which HMI nurtures.

Approval Procedures

Approval requirements were introduced after the last war as the result of shortage of resources both of buildings and staff. All courses then required prior approval by the Ministry. At about the same time the Percy Report was published suggesting the creation of the Regional Advisory Councils. The number of courses requiring approval grew steadily until it became unmanageable. Administrative Memorandum 545 published in 1957 recommended that only advanced courses should require prior approval. The relevant regulations are now the Further Education Regulations of 1969 and currently the Regional Staff Inspector on behalf of the Secretary of State is approving as many advanced courses as the total involved when AM 545 was first introduced.

As a result a pilot scheme was introduced two years ago and this is working well. Under this scheme the RSI normally expects to accept recommendations of the Regional Advisory Council in all part-time construction and engineering courses. This has reduced the direct load on RSI considerably, yet has affected the educational system very little due to the close coincidence of view between the RAC and RSI decisions. There still remains a great deal of work - last year RSI considered in addition to some other part-time courses 573 full-time and sandwich advanced courses and part-time degrees alone, approving 339 of them.

Approval procedures operate to an agreed time-table which can be modified to meet the suggestions of the local authority, the RAC and the colleges in the region concerned. Final dates are nationally agreed but the precise operation of the RACs vary because of their different constitution and regional situation.

The method of course approval is probably familiar. Form 21 FE is sent to the RAC and to the Regional Staff Inspector acting on behalf of the Secretary of State. It is normally submitted by the Local Education Authority which takes the responsibility for provision. It is perhaps worth noting that a member of staff of a polytechnic may be an "authorised officer" of the Local Education Authority in this context. The RAC, in considering any submission, must place a great deal of weight on the integrity of the college making the proposal for its approval may commit the country to an annual expenditure of as much as a £120,000 per annum for a single course. The RAC considers proposals on a regional basis and makes recommendations to the Regional Staff Inspector. Considerable weight is attached to the RAC recommendation. While the RAC considers the proposal the Regional Staff Inspector seeks the views of the General and Specialist Inspectors concerned.

Part-time courses other than degree and postgraduate courses are decided on a regional basis. Degree, postgraduate and other full-time or sandwich courses are also considered centrally. The Department will take into account not only the recommendation of the RAC but the views of other agencies for example the UGC the SSRC or the SRC, the CBI, ITBs and professional bodies and the CNAA. It does not necessarily accept the recommendations of these bodies as conclusive but it does seek their advice because naturally there is little point in, for example, approving proposals for a Masters degree course which is entirely dependent on research grants if in fact the SSRC or the SRC is unlikely or unable to make finance available. Proposals are considered in the light of DES policy. Decisions will be partly based upon geographical considerations for there is always an attempt to achieve equity between regions. The need to build up the weaker polytechnics is take into account. Job opportunities for students who have followed a proposed course are also considered where this is relevant although this is not regarded as a deciding factor because there may be good reasons for running a course unrelated to vocation and, with entry into the EEC, job opportunities are changing. Problems exist with courses which have been approved by the Regional Staff Inspector but not yet cleared by the CNAA. These courses may remain "in the pipeline" for a considerable time and other colleges which have their own

similar proposals refused may not always appreciate that this is the reason.

Resources

RSIs are naturally concerned with the resource availability and organisation, not only nationally but within the institutions themselves. The student/staff ratio is falling. One way to remedy this would be for colleges to reduce the number of options they offer but it has to be remembered that staff involved in options which are no longer offered may have to be found other work. Cumbersome as our present system of resource organisation may be it would not be easy to achieve a better one without introducing a new range of hazards. Alternative systems may indeed increase the rigidity of the control in order to improve staff/student ratios.

The RACs are frequently criticised but the colleges themselves have a major responsibility for the effective operation of the RAC which, after all consists of college and local authority representatives. The RAC seldom has limited terms of reference and can provide a flexible instrument if colleges are prepared to make the effort to ensure that the machinery open to them is fully used for development purposes.

With regard to buildings the importance of flexibility in design is becoming crucial as resources become increasingly under pressure.

Many resource decisions are taken internally in the college, for example decisions over the treatment of continuing education, the proportion between full-time and part-time courses and the proportion of resources devoted to research. Such decisions may relate to the basic role of the institution as it sees itself and whether it tends to regard itself as an "academic" institution or one catering essentially for industrial needs. Upon this may depend a decision for example on whether to devote resources to post "A" level entrants or to in-service training for experienced personnel. Other relevant factors include the structure of the Academic Board, the uses made of educational technology, the method of financial and managerial control employed, the amount of market research carried out to ensure the feasibility of course proposals and the consequential contact with schools, ITBs and industry to investigate student intake. None of these factors are in themselves vital issues but all have a relevance to the approval of courses.

In conclusion it may be suggested that the best planning is often done on a regional and local basis where decisions can be reached on regional needs. These obviously need to be related to national policy. There is sometimes a tendency to wish to shift all responsibility for making decisions to Central Government but a decision made centrally is less likely to be the best one for an individual institution in its own regional context than one based on a more intimate knowledge of the local situation. It is essential therefore that to allow final decisions about course approval to be made effectively there should be as much information available as possible on the situation in the institution and its locality.

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COURSE VALIDATION AND APPROVAL - THE CNAA

"My remit is to speak about the principles of course validation, and I shall not deal at any length with the details of procedure, except to draw attention to the paper issued by the CNAA in September 1973, entitled "Procedure for Validation of Courses of Study", which introduced a sliding scale of validation procedures from more to less detailed according to the circumstances and experience of the college or polytechnic concerned. CNAA has no way of avoiding the validation of courses - it must be involved in such procedures according to the requirements of its charter. It should be noted also that the Council is currently in process of revising Statement No. 3. its main policy document on first degree courses, as the first stage of an exercise which has to be completed in two stages, since it is not yet possible to include guidance on Dip HE programmes that are linked to degree programmes, or the new style B. Ed., or any reference to the proposed merger with NCDAD, all of which will have consequences for our degree regulations. The second stage or revision will probably take place next year, when we shall be able to take account of reactions to the first stage revision. The general effect will, it is hoped, be to offer more flexibility than the original Statement published in 1965.

I feel it would be useful in this paper to concentrate on two main themes. First, I shall comment from a CNAA viewpoint on the main external factors and problems which affect the way the Council operates and the way in which policy is moving. Secondly, I shall refer to the academic criteria adopted by subject boards for course validation. Arising from this, I shall discuss briefly some aspects which have given rise to misgivings among CNAA staff, and finally, pay some attention to promising developments in the polytechnics.

External Factors

diversity

An obvious factor which influences the validalidation process is the diversity of the institutions involved in CNAA work. The polytechnics still provide the staple of our day-to-day work, but they differ in size, facilities and the range of their courses, according to how they originated. We thus have the situation that all institutions, virtually, are new in terms of polytechnic status, yet nearly all have individual histories which have an impact upon course development. Added to this is the fact that, in the current situation, many polytechnics are negotiating mergers with colleges of education;

other colleges of education are amalgamating amongst themselves or preparing to carry on independently; other non-polytechnic colleges which previously offered London University external degree work are naturally seeking to maintain their advanced teaching by transferring to CNAA courses; and in some cases, small independent colleges such as those concerned with music, drama and theology, which have developed work of degree level status, are endeavouring to strengthen their position by seeking CNAA recognition. The point I want to draw from this is that CNAA is not in a position to establish any rigid policies on course validation, and cannot be insensitive to the historical situation in which it has itself grown up. Each course has to be considered on its particular merits and in its individual context. This implies, in turn, that the experiences of colleges with well-established degree work has to be recognised in the Council's procedures, which is precisely the theme of the recent paper I have already mentioned on the "Procedure for the Validation of Courses of Study".

balance

A second problem, perhaps most noticeable in the arts and social studies field, is the uneven development of subject areas within the polytechnics. As a result, polytechnics with excellent work in some areas may entirely lack departments in others or may be slowly establishing work in new fields. A common problem is the emergence of degree level work in arts and humanities amongst staff who have hitherto been largely restricted to general studies teaching, often at a lower level. Similar problems arise where staff have been wholly concerned with professional courses - in accountancy for example - and are seeking to provide academic stiffening to their work without having the qualifications or the experience necessary to do so.

expansion

Thirdly, there is often a lack of awareness of the phenomenal expansion of CNAA work in terms of the number of course applications submitted. In September 1965 there were 89 approved courses and 4073 enrolments. By September 1973 this had grown to 603 approved courses and 41,646 students. In fact, the total workload of all courses considered doubled over the last three years, and, in the arts and social sciences, over the last two years. Moreover, our current programme of course considerations for this year alone (1973-4) adds up to 500 separate applications, including new courses, applications for renewal, addition of major options and restructuring of courses. This in itself adds some urgency to the Council's wish to allow greater freedom to the polytechnics when they have proved their experience, for only in this way can we hope to do justice to those colleges which need help and guidance from the subject boards.

diversification of awards

Fourthly, there is a problem connected with the fact that many polytechnic staff still regard CNAA as a body which deals only with first degree awards. We have had a slow response to the facility offered by our postgraduate diploma scheme, and the number of master's courses proposed is small. The diploma scheme could be particularly useful as a means of offering continuing education, or retraining, or bridging courses to master's degree programmes. Diversification of awards does, however, raise problems of determining policy and criteria for the consideration of courses, because

comparability with existing university awards may not be as straightforward as it is with first degree courses. We are setting up a working party to consider a revised policy statement covering all of our taught postgraduate work, which will, hopefully, report during the next academic year. For the immediate future we are faced with developing basic policy on the Dip HE, on its relationship with degree courses and on the question of credit allowances and transferability between courses. We are also developing guidelines on certificate courses at sub-degree level, designed to provide educational opportunities to students without the standard two "A" level GCE qualifications. Under the heading "diversification" I must also mention the development of modular degree structures which have in general widened the multi-disciplinary range of courses and have created unique problems of course validation. I shall return to this point later in referring to the relationship between course structure and content.

resources

The resource problem inevitably affects future plans. Enormous changes in physical conditions have taken place in colleges offering CNAA courses, in the quality of their accommodation and in material facilities such as libraries. The CNAA will continue to be concerned that the facilities for operating courses are adequate, that there is sufficient library expenditure, and that academic staff and technician support are adequate, and it will not be prepared to lower its standards because of financial constraints. Instead, courses may have to be deferred or redesigned to make more economical use of staff or to omit options involving costly equipment or additional library provision.

Academic Criteria

The CNAA is sometimes criticised for not publishing its criteria for the consideration of courses. It is certainly common to hear the question "What does the CNAA want?" and the implied corollary "Let s find out and make sure we give it to them". The reason why the CNAA Statement No. 3 and its revised version leave much unsaid is that the CNAA does not want to prescribe what should be taught nor how it should be taught. Its main purpose is to encourage the design of new critical enquiry which many people would be sorry to lose. The CNAA also provides a forum for debate - often debate of the highest quality takes place either within the subject boards or during subject board visits to colleges - and has brought together academics from the whole of higher education in the UK, giving them a chance to exchange views and to see what is happening in their particular subject on both sides of the so-called binary line.

I would now like to offer some suggestions concerning academic criteria, largely with reference to first degree courses, although my comments will probably apply equally to other types of course.

environment and staff

First, the CNAA believes that a course proposal is much more than a paper exercise. Words are, in a sense, negotiable - course structures can be argued and defended or changed, syllabuses are words on paper and can be

replaced or modified with the exercise of thought, effort and goodwill. What matters is the staff, the sense of academic community conducive to intellectual work, the general college environment which may literally be a cultural oasis in an industrial wasteland. As an academic criterion, staffing is perhaps the most thorny problem. Colleges have their particular history, their staff of long service and varying qualities, their individual background of course development, which may mean that uses have to be found for staff who would otherwise be redundant, and so on. Some colleges have been fortunate in being able to build up investment staff for work in new areas while others have been forced to restrict expansion. The recent paper on the Procedure for Validation of Courses emphasises the Council s view that in future more attention should be given to the appraisal of staff and the college environment, and much less to the detail of course proposals presented in applications.

aims and objectives

CNAA has undoubtedly been more rigorous than many organisations of its kind in insisting that the aims and objectives of a course must be clearly formulated, and that they are realistic and do not claim to achieve more than is possible in a three or four year course. The fundamental point is the question of trust and the level of confidence the board or panel concerned in the validation process has in the staff. This in turn, however, means that the staff must have relevant qualifications and appropriate experience, there must be enough people with sufficiently strong leadership in the main areas of study, and for Honours courses there must be a high level of background activity to support Honours work.

A Balanced Educational Experience

The CNAA has further required that the aims and objectives of a course are such as to support a sufficiently balanced educational experience for students. It has tried not to encourage courses that close doors or create dead ends, and has insisted that even in the most narrowly vocational course students should have some broadening element which increases their understanding of modes of thought and academic disciplines different from those in which they are specialising.

Next, there is the question of whether a course is judged to fulfil satisfactorily the intentions expressed in the aims and objectives. Certain librarianship courses, for example, have had so much extraneous matter in them that the essential core of librarianship necessary for professional practice could not satisfactorily have been completed in the time available.

rationale

Then we have to ask, does the course demonstrate in its content the claims made in its title and the rationale expressed for it? For instance, we receive proposals for European Studies courses which claim to offer a theme-centred approach, focussed on the concept of "Europe", but which in fact present merely a collocation of separate disciplinary studies.

structures

After aims, objectives and rationale we come to structure. Here again, I believe the CNAA has given unusual emphasis to the need to regard a course as a coherent educational experience, complete in itself, and depending for some of its strength and challenge on the fact that it is completed within a specified time. Thus importance is attached to the vertical and horizontal structure of a course, and where modular courses are offered, the Council is particularly concerned that students have adequate tutorial guidance to create a programme of study which will emerge as a satisfying whole. Linked with this is the concept that a course designed for a standard 18 plus entry must take account of the fact that the students are growing and maturing intellectually, and that it will be desirable to allow for at least some sense of progression. Even though modular courses have been rather destructive of this concept, I believe the CNAA would be reluctant to abandon it.

Next, there is the need to ensure that the course content is logically arranged in relation to the progression of difficulty of the material. This is a most common fault and also probably one of the most difficult things to get right - that students get the conceptual tools they need for the main part of their studies at the right time, that they are not overtaxed by work that should be regarded as postgraduate, in an undergraduate course, or alternatively that they should not be undertaxed with too elementary work, and so on.

workload and Honours courses

The work load demanded of students must be realistic, and not range too widely for the student to assimilate sufficiently what he or she is doing. I would like to put in a plea here against the overloading of courses, since this is a common difficulty. It may have arisen partly from the fact that CNAA has accepted the idea that broad, non-specialist courses can be worthy of an Honours award, especially where the challenge comes in the effort of integration between the subject areas. What seems to have happened in many cases, however, is that merely adding to the workload is thought to equal Honours, and the idea of excellence seems to be lost. This leads me to the criteria CNAA adopts for establishing the Honours-worthiness of a course. The revised regulations issued in 1971 suggested criteria but did not pretend to offer a definitive list. These were, basically, that an Honours course should consist of something more, or something different and more advanced, than a non-Honours degree course, but that in every case there should be a quality, generally understandable as "Honours" in any degree course, whether university or CNAA, which can be defined as exellence in performance or achievement.

Thinking about the realities of course validation, when there is a mixed group of board members examining an equally mixed collection of schemes, I believe that the criteria I have listed above cover virtually any feature of a course on which approval or rejection may depend. I do believe also, however, that these criteria are not arbitrary - indeed they might be regarded as common sense, and would continue to be important whatever method of course validation was used.

Misgivings

I shall now say something about the misgivings felt among some members of the CNAA, in the hope that further thought might be given to these matters:

curriculum development

Firstly, the Council's Committee for Science and Technology has expressed concern that despite the ever-increasing workload of the subject boards, a vast amount of the work is in the nature of reconstruction of courses rather than offering any significant advances in curriculum development. We realise that this is occasioned by falling enrolments in certain science and technology departments but the fact remains that many new courses being submitted are unexciting.

The Committee for Arts and Social Studies has similar problems with arts courses of the type which replaced the London BA General degree. Too often, it seems that a subject-for-subject replacement has discouraged new departures. Personally, I have misgivings that the arts courses proposed by colleges of education seeking to expand their existing work will only tend to duplicate courses already available rather than add new dimensions.

intake

It is true to say also that the CNAA has some misgivings about the number of separate courses which continue to be proposed, all with relatively small student intakes. We wonder whether it might not be better to have a smaller number of courses with larger intakes. Yet the number of polytechnics operating this policy is small.

modular structures

The Council is not absolutely convinced that the present vogue for modular structures will last, and not everyone is happy that a common structure should be imposed on a whole range of courses in a college without regard for the differing nature of the disciplines, the need for some courses to revolve around a core while others build on a foundation, the varying requirements for compulsory or optional elements and so on. Yet we are already reaching a stage where we are being asked to approve a structure in advance of seeing specific courses, and unless particular care is exercised in the planning, this can make nonsense of seeking to relate structure to aims and content. The Council's general reaction might well be that it would be reluctant to see its freedom of decision pre-empted in this way.

stability

Another problem is that, partly because we are in a fast-growing situation, there seems still to be an inherent lack of stability in colleges - staff mobility is high, courses are constantly being changed - and though Council wants to be able to rely much more on the quality of departments and of the staff conducting courses it is not always easy to do so when staff change so rapidly. We are all aware of the underlying reasons but the fact remains that, for example, the CNAA's wish to take applications for renewal of courses more frequently on trust can only partially be satisfied, so long as groupings of staff are liable to so much variation.

multi-disciplinary courses

My last point is a personal one. I wonder whether the development of multi-disciplinary courses, which is probably the polytechnics most interesting contribution to higher education, has not been achieved at the expense of certain types of specialist course which the polytechnics are in fact extremely well fitted to offer. I am thinking especially, for example, of the unique contribution to the formation of highly skilled linguists made by the public sector colleges and much the same could be said of other professions and careers. One has the feeling that students will no longer achieve sufficient penetration in any one discipline to approach mastery of it, and, to my mind, if this trend continues it will be a great loss. It certainly seems that a number of colleges are turning over virtually their entire curriculum to non-specialist courses.

Encouraging Developments

Finally, I would like to stress that Board members who have been involved in CNAA work for the last six or seven years have been very aware of the positive advances in course development that have taken place. One has only to compare some of the 1966 course applications with those being submitted now, or to compare polytechnic submissions with those of less experienced colleges. We have already reached the stage where in certain colleges we can approve courses without needing to undertake a visit. Moreover, subject boards concerned with course validation now have a much larger proportion of college members, as opposed to university members, and increasingly it is polytechnic staff who are being proposed as external examiners for CNAA courses.

It is very much to the credit of staff in the polytechnics that so much innovatory work has been achieved, though the total number of graduates is still relatively small and it is not possible yet fully to assess results.

We have reached the stage now where the Council s subject boards can think much more in terms of a sharing of experience, so that course validation becomes more of a collaborative process between the colleges and the CNAA, in which people on both sides are prepared to learn from each other and to modify their attitudes. CNAA, after all, is entirely dependent for the academic standing of its degrees on the creative, forward thinking of the colleges, and on their willingness ro ensure that their courses will stand up to objective criticism. In the end, the main focus of concern of both the CNAA and the colleges, must be to give the students a fair deal."

Discussion Arising

A conference member suggested that there was a need for better liaison between the DES and the CNAA. The DES and the Regional Staff Inspector might approve a scheme to be run by staff in post, yet the CNAA might later insist that the scheme required, perhaps, six further specialist staff. Mr. Dudley remarked that the issue of approval, in such a case, was dependent upon whether the local education authority was willing to allocate resources for these additional staff. If a decision to run a course had to be reversed at such a late stage it was a great waste of resources. Therefore as much collaboration as possible should take place in the early stages. Mrs Ridler added that if the CNAA estimated that as many as six extra staff were needed it seemed likely that the polytechnic had underestimated its own requirements.

teacher training courses

Mr. Dudley was asked whether there would be a requirement to go through the FE 21 procedure for courses in teacher education which would in future take place in polytechnics and other FE colleges, in view of the fact that colleges of education were at present exempt. He explained that B. Ed and Teacher's Certificate courses would not be subject to this requirement, although all Dip HE courses, including those which formed the first part of a B. Ed course would have to undergo the FE 21 process.

K C Stephenson,
Finance Officer,
The Polytechnic
of Central London

THE DETERMINATION OF COURSE COSTS

"In the first part of my paper I shall explain PCL thinking on the subject of cost control and then I shall describe some developments in cost proposals. Dr. Bloomer spoke of the control of the allocation of resources - I hope to suggest a way of doing this from an accounting viewpoint. I shall stress management rather than administration. In a period of inflation and shortage we must all be better managers in order to keep costs within reason, but as managers we are entitled to the support of a first class management accounting and data service. I believe that financial control should not dictate policy - it should service and support it. If there is not enough money to service all the desired projects then the managers must decide which aspects of their policy are to be financed.

PCL

The reasoning behind cost control thinking at PCL is to some extent due to the background of the polytechnic. As one of five ILEA polytechnics, PCL is a company limited by guarantee. It has a memorandum and articles of association instead of a charter or general articles and the Governors are the equivalent of Company Directors. The college has the usual obligations under the Companies Act. Fortunately it is registered as a charity and thus is not liable to income tax.

The company is a separate legal entity between the world at large (including staff, students and creditors) and the local authority. In consequence staff are employed by the company rather than the local authority and creditors must look to the company not the local authority if bills are unpaid. In theory, if the polytechnic's support grant was removed there would be no direct contractual obligations to outsiders so far as the local authority is concerned. Therefore the PCL is in a different position from a polytechnic directly controlled by the local authority but in real terms of detailed control and finance we are no different from other polytechnics. We receive an ILEA grant of just over £4 million, other income stands at about £500,000 and short courses plus research attracts another £250,000. Thus as the largest contributor to our income the local authority can control our affairs - in fact the regulations under which the money is made available and the memorandum and articles provide absolute control. There are about 1,500 staff on our payroll, including approximately 600 part timers. The fact that the polytechnic is spread over 20 sites presents certain problems.

A basic disadvantage in our arrangements is that there is no direct access to committees of the local authority officers. A major restriction to our activities is the rules under which the main grant is given. They were formulated 30-40 years ago and are inadequate to cope with the developing polytechnics. The local authority controls our budget down to specific headings stipulating, for example, the number, type and grades of staff in our establishment and their conditions of service, so that although we are a company, we are tightly controlled. However, we do have virement which we operate centrally for internal control purposes. A second restriction is that, in central London, it is difficult to recruit high grade finance staff to man a sophisticated information service.

objectives

We have a number of basic financial objectives which, in order of priority are:

1. To pay staff accurately and promptly.
2. To pay our bills as promptly as prudence indicates.
3. To produce a detailed monthly management account to ensure that we avoid the bankruptcy court and confirm that PCL is under cost control.
4. To think about costing and struggle towards the creation of an acceptable management accounting service.

need for cost control

Cost control is necessary both nationally and domestically. A great deal of money is involved in higher education and even a non-profit making organisation should take the opportunity to exercise the financial management controls which are available to commerce and industry. The main difference is that instead of expecting every department to make a profit, we ask them to make £1 do the work of £1. 25.

The national need for cost control arises from our responsibility to assist in recurring financial crises. In the past we have been given a large proportion of the national revenue for education, but this cannot continue to increase at the same rate. Therefore we must try to avoid waste wherever we can.

In my limited experience of the administration of higher education there appear to be several issues which have never been satisfactorily resolved. There are no standard accounting procedures so comparison with other colleges is made very difficult. Secondly, there is a need to eliminate overlapping courses and competition for students between the polytechnics - the size of the advertising bill alone is staggering. Thirdly, the serious shortage of student accommodation leads me to the view that there should be an increasing number of students attending polytechnics in their home area.

Within the institution itself, prudent housekeeping is essential. We must eliminate as much waste as possible and maximise the use of resources. Manpower is the most expensive commodity in colleges - in our case it accounts for about 80% of our £4. 5 million budget, a clear indication that man hours must be handled carefully. My polytechnic, being in central London, has a multi-million pound investment in premises and this raises the

question - whether usage should be increased to 50 or even 52 weeks a year. We have been able to increase the use of halls of residence beyond the length of the academic year but so far no real progress has been made towards the extension of use of the remaining premises for a full working year. Equipment and operating costs also account for an investment of millions of pounds, so here again, their use should be maximised. Inflation and growing world shortages (e. g. fuel and paper) increase our difficulties and create an awareness of the importance of resource management.

From a domestic point of view, cost control can help in the development of short and "full cost" courses.

policy

Initially because of ILEA control, there is little point in attempting a costing operation in terms of money to include our major expenses: personnel, buildings and equipment. It is sufficient to cost only "other expenditure": class materials, staff attendance at courses, travelling etc, but in addition we should include the control of personnel, accommodation, equipment etc. in terms other than financial ones, e. g. "teaching hours", "operating hours" etc.

We believe that both types of resource control should be exercised by the same people from the same location. If control is to be based on Schools, then the School Office or Registry becomes the cost point from which a team administers control. In addition to the obvious objective of maximising the use of resources there is a further aim - and that is to demonstrate to the Head of School or Department the consequences of running specific types of course instead of alternatives.

future policy

Ultimately the situation will change, and I believe that polytechnics will receive an annual grant from either central or local government without detailed control. Polytechnics will then be able to make their own decisions regarding establishments and about all budgets. There it will be vital to have a first rate internal control system. The "in-fighting" over resources will be fierce and the most successful Heads of School and Heads of Department will be those who are the most competent managers. It will be essential that we do our costing in terms of money from school or departmental cost centres and the Heads of these will then be fully supported by effective accounting help and management data. The accounting staff must be of high calibre, for they will be dealing with vast resources.

operation

At present we have a system of budgetary control at PCL. There are monthly accounts analysed by departments and each month we compare actual expenditure with the budgets. All expenditure is controlled centrally except for the following items: class materials, travelling expenses, staff attendance at courses etc, technical equipment under £200 and sundry minor items. In respect of these, Heads of Departments are encouraged to use commitment accounting and are given budgets annually followed by actual figures monthly. The local authority controls personnel, accommodation and equipment on an overall basis but the Heads of Department are given control

of academic staff time on an ad hoc basis. Projects not included in the annual budgets are considered on merit by the Directorate who allocate resources from available reserves if the project is thought worthy.

proposals

When we become divided into schools, which will occur at the start of the next academic year, there will be some changes in our costing system. The Head of School will be the resources manager of a specific budget, and we hope that he will be supported by the accounting and management data service already described. Initially, the service must depend upon the availability of staff (controlled by ILEA) but eventually the matter should be put under the control of the polytechnic itself.

PCL unit cost system

At PCL we are developing a unit cost system in preparation for the ultimate stage when we control our own finances. We have produced a document which demonstrates the system, and extracts from this are produced below. The document has many limitations: it was produced for domestic use only by our limited staff resources. Although the arithmetic it contains is correct because it was reconciled with audited accounts, there are limitations regarding the allocation of expenses: academic service departments, non-departmental costs and departmental costs are not scientifically determined but simply spread evenly across the departments. However, there is sufficient detail provided in the document to permit re-grouping and re-analysis on any basis. The document, which provides an indication of domestic trends only and cannot be used for national comparison, tends to prompt questions rather than answer them, and is therefore a working tool.

The method in which we will use unit costs is as follows: Unit costs are agreed for the various student groups throughout the Polytechnic and these standards would be operated in much the same way as standard costs in industry. Heads of Schools and Departments would have flexibility within a total budget related to the unit costs. They would decide expense ratios and have the power to sacrifice items in exchange for alternatives (including all staffs under their control). However, once decisions were taken they would have to remain unchanged for fairly long periods - at least one academic year. "

Discussion Arising

management accountants

How many management accountants would be desirable in PCL? Mr. Stephenson replied that the ideal figure would be eight - one in each School, although there was little likelihood of achieving this. It was more realistic to think in terms of two qualified and two partly qualified accountants being allowed.

residential accommodation

How did Mr. Stephenson reconcile the need for the national situation to be considered and courses to be rationalised with the DES's desire to see more

courses provided for home-based students? Mr. Stephenson s view was that a compromise was needed between the present situation where there was no control over where students chose to study, and the concept of forcing students to go to their local polytechnic. Students should be directed to courses offered near their homes, as this would save resources but he did not think it was possible to be categorical.

academic and administrative ability

The discussion dwelt for a considerable time on the increasing administrative duties an academic assumed as he took up more important posts. Some members felt that a good academic did not necessarily make a good manager; others deplored the amount of time that had to be spent on administrative matters. Mr. Stephenson s view was that any academic who rose to a high position in an institution already possessed the drive and enthusiasm that would make him a good manager. He agreed with the suggestion that an administrative assistant who could furnish basic information would save considerable time.

PCL UNIT COSTS 1971/72

The following extract is taken from the unit cost document referred to by Mr. Stephenson. It consists of the explanatory notes and the summary of the total unit costs. The rest of the document supports these total unit costs and gives sufficient detail to allow re-analysis if required. Summaries are included of classes, central administration, maintenance of premises and notional rent charge. There are also miscellaneous supporting schedules showing comparisons with 1970/71 figures and information on the method of calculating full-time students. Also a comparison between the PCL and UGC methods of calculating unit costs is provided.

THE POLYTECHNIC OF CENTRAL LONDON

UNIT COSTS 1971/72

UNIT SUMMARY

DEPARTMENTS	Depart-mental	Non-depart-mental	Dept. Admin.	Total	Central Admin.	Main. of Prem.	Total ex notional market rent	Notional market rent	Total unit costs
Architecture	844	54	46	944					
Building	1,594	565	478	2,637					
Surveying	575	93	78	746					
Social and environmental planning	1,088	177	150	1,415					
Civil engineering	1,321	76	64	1,461					
Engineering and systems tech.	1,619	112	95	1,826					
Electrical and electronic engineering	849	79	66	994					
Maths and computing physics	744	80	68	892					
Life sciences	826	50	43	919					
Photography	1,066	70	59	1,195					
Communications	893	130	110	1,133					
Social and business studies	359	12	10	381					
Management studies	786	37	31	854					
Modern languages	575	22	19	616					
Law	279	23	20	322					
Average cost per full-time equivalent student									
PCL student hour method	652	47	40	739	106	171	1,016	598	1,614
UGC weighting method	461	33	28	522	75	121	718	424	1,142

(See notes 6.3 - 6.5 re UGC basis)

NOTE: This page should be read in conjunction with explanatory notes 1 - 3 inclusive.

THE POLYTECHNIC OF CENTRAL LONDON

UNIT COSTS - 1971/72

EXPLANATORY NOTES

METHOD OF APPROACH

1. Expenditure for the financial year ended 31st July 1972 has been analysed over the following headings:

   Maintenance of classes
   Central administration
   Maintenance of premises

2. Maintenance of classes has been sub-divided to provide totals for

   Departmental expenses
   Non-departmental expenses
   Departmental administration expenses

2.1 Departmental expenditure comprises salaries of full-time and part-time academic staff, readers, research assistants and technical staff salaries, class materials, scholarship and exam fees, technical equipment under £200, staff attendance at conferences and courses and incidental teaching expenses.

2.2 Salaries of computer centre staff, the director and pro-directors have been transferred from departmental salaries to central administration. Scholarship and examination fees and incidental teaching expenses were excluded from the 1970/71 maintenance of classes unit cost calculation.

2.3 The only expenditure requiring arbitrary apportionment between departments was scholarship and exam fees which were divided equally between the departments.

2.4 Due to internal departmental reorganisation during 1971/72 an adequate separation of expenditure between the maths/computing and physics departments was not possible and all expenditure has been aggregated for the purposes of arriving at a universal unit cost for these departments.

2.5 Non-departmental expenditure is comprised of

   (i) Library costs (including library staff salaries) and
   (ii) Printing of prospectuses and pamphlets.

These costs have been spread equally over the direct departments. Expenditure under these two headings was not included in the 1970/71 maintenance of classes unit costs.

2.6 Departmental administration consists of registry staff salaries and heads of departments secretaries salaries transferred from central administration. These costs have been spread equally over the direct departments.

3. SERVICE DEPARTMENTS

Only direct expenditure has been allocated to the academic departments classified as "service departments", namely the extra curricula, educational technology and recreational technology departments. The expenditure shown under the foregoing service departments has been re-allocated equally over the direct departments. Services provided by the maths department have been reflected in adjustments made to user department student hours.

4. ADMINISTRATION AND MAINTENANCE OF PREMISES

All expenditure not capable of specific allocation to maintenance of classes has been allocated to either administration or maintenance of premises.

5. NOTIONAL RENT CHARGE - £2,109,780

The rent charge of £27,295 per the 1971/72 accounts is only a minute proportion of the total capital interest charges and rent payments borne directly by the ILEA on behalf of the PCL.

In an attempt to reflect for the first time the foregoing circumstances in the 1971/72 unit costs a notional rent charge covering all PCL buildings with the exception of halls of residence has been included. The notional charge is based on an estimated cost of £3 per square foot as opposed to the average West End office rental of £5 per square foot. The figure of £3 was taken to compensate for the large communal areas within the various Poly buildings that would not attract rent at full market rate due to limitations on use.

6. STUDENT HOURS/FULL TIME EQUIVALENTS

Details of student hours were available for all departments excluding educational technology and recreational technology.

6.1 Student hour figures have been calculated for short courses and deducted before calculating the full-time equivalents using the 1,080 hour student year basis.

6.2 The 1970/71 student hours/f.t.e. figures have been revised to establish a valid basis of comparison with the 1971/72 figures.

6.3 To provide a comparison with the foregoing student hour method of conversion, the f.t.e.s were also calculated on the UGC basis. This method adopts a weighting to convert registered student numbers to f.t.e.s on the basis of:

(i) 5 full-time (short) students - 1 f. t. e.
(ii) 5 block-release students - 1 "
(iii) 2 part-time day/evening students - 1 "

The UGC do not specify an exact basis for converting sandwich course and evening class student numbers to f. t. e. s and conversions have respectively been made in the ratio of 1 to 1 and 10 to 1.

6. 4 The alternative basis produces a much higher number of f. t. e. s thus reducing the average unit costs as illustrated in the working papers. The UGC method in the main seems more arbitrary in its approach and this coupled with the fact that enrolled student numbers are used for part-time day/evening class conversions rather than registered student hours make this method less viable.

6. 5 It must be stressed that the student hour method of conversion is by no means perfect but offers in the circumstances a more accurate basis.

7. UNIT COST COMPILATION - UNIVERSITY GRANTS COMMITTEE BASIS

The UGC basis for compilation of unit costs excludes salaries of library staff, registry staff and heads of departments secretaries. The PCL calculations include these headings under maintenance of classes and their contribution to the average student unit cost is £35 in the case of library staff and £40 for registry staff and heads of departments secretaries.

8. AVERAGE COSTS PER STUDENT UNITS
COMPARISON WITH 1970/71 FIGURES

	1971/72	1970/71
	£	£
Per PCL method based on total costs	1, 016	787
Per PCL method based on maintenance of classes	739	494

NOTE

The 1971/72 figures for maintenance of classes have been increased in comparison with 1970/71 by £47 per average student unit with the inclusion of the costs in full of libraries and printing and prospectuses previously excluded.

9. RESEARCH GRANTS

The element of time given to research projects by heads of departments and senior staff has been disregarded in arriving at total costs for unit cost purposes. The time that would have been required to calculate the proportion of salaries to be transferred from maintenance grant headings to research would have been disproportionate to the figures involved.

All expenses incurred as a direct result of a research grant being undertaken are separately allocated and automatically excluded from the student unit costs under consideration.

10. SHORT COURSE STUDENT HOURS

The hours in this category were included originally with the overall hours figure provided by the academic registrar but it was possible to eliminate them by estimating the hours to be transferred to short courses by reference to existing schedules.

11. Details of expenditure have been taken directly from audited accounts for the year ended 31st July 1972.

12. CONCLUSION

The final unit costs show a massive increase in comparison with the revised 1970/71 figures. This is attributable to the combined effect of increases in departmental costs under maintenance of classes totalling £590,000 unaccompanied by any increase in student numbers. This factor, together with the incorporation of library and printing expenditure for the first time under maintenance of classes adding a further £47 per student unit and the increase in registry staff salaries shown under departmental administration, has meant a total addition of £818,000 to the 1970/71 maintenance of class costs.

Dr N T Bloomer,
Deputy Director,
The Hatfield
Polytechnic

THE CONTROL OF THE ALLOCATION OF RESOURCES

"Historically in technical colleges and colleges of FE it has been the role of the Principal to allocate resources. While he was never allowed the amount of resources that he felt was required, it was his task to make the best use of what was available in responding to pressures from the various departments in the college. The concept of participation by staff in the management of institutions is fairly recent in the public sector. Only in the last 12-15 years have academic boards been expected to participate in decision making in institutions. Initially these boards had difficulties owing to the fact that few of their members had any experience in decision making activities. Some academic boards are still suffering from this problem, the difficulty of which depends in part on the maturity of the academic board members.

In my paper I shall assume that the Director is responsible for resources but that the academic board make recommendations to him which he usually accepts, although I am, of course, aware of the various nuances which exist in the interpretation of the role of the academic board.

It is vital that academic boards realise the resource consequences of the implementation of any recommendations that they make on academic matters. In my view, therefore, all academic boards should have a resource sub-committee which is aware of the activities taking place and the resouces available, so that priorities can be assigned accordingly. All resources, with perahps the exception of planning permission from local authorities for buildings, are based ultimately on money. The main resources are land, buildings, non-teaching staff, academic staff, equipment and consumables.

Land is of paramount importance. It will become increasingly clear that polytechnics which are restricted by the size of their sites will have certain problems which will not be experienced by more fortunate ones which can expand academically and also provide residential accommodation on the campus. Anyone who has discussed the provision of car parking facilities with a local authority architect will know some of the difficulties - especially incidentally, as this is a provision for which nobody wants to pay.

One of the resources often ignored by academic boards is existing buildings. Buildings are a costly resource and it is essential that the best possible use is made of them. The present moratorium on building programmes may well give way to a parsimonious climate that could last a decade, so polytechnics

will have to redeploy their space carefully. Large unused areas are an expensive waste of space. The present cost of building and the interest rates on capital means that a room of 100 square feet which cost £1,800 to build will be costing about £180 per year in interest on the capital investment. A 2,000 square foot laboratory would represent a capital investment of about £3,500 - a considerable sum to waste by leaving the room unused.

In the DES "Design Note No. 8" estimates of precise areas needed by all full time equivalent students are defined. These range from 13 square metres for arts and social science students, 18 square metres for engineering and science students, to 25 square metres for art and design students. Therefore, in this respect at least, art and design students are expensive.

Residential accommodation is constantly demanded by the students. Academic Boards must bear in mind that the cost of a residential place is approximately the same as the cost of an academic place, i.e. £1,500 - £2,000. The present stringent economic climate has therefore developed at an unfortunate time for the polytechnics, who were beginning to get approval of plans for residential building. It seems unlikely that circumstances will allow many further developments in this respect and I suspect that it may be national policy to provide more academic places without residence than less with residence for the same cost. If students are going to have to live at home or in lodgings near the college, good communal facilities and buildings must be provided. These may have to be open from breakfast time to midnight during the weekend as well as on weekdays. This in itself brings problems which involve renegotiation of conditions of service for non-teaching staff.

Who should make decisions regarding the usage of buildings? Should each Dean of Faculty have jurisdiction over a certain area? How far should the Dean delegate this responsibility to the departments? To what extent should the area devoted to staff offices be limited? Who should have the overall responsibility for this - an Assistant Director perhaps? Should the UGC recommended figures for the expenditure on space for different grades of staff be adhered to? There is no simple solution to any of these problems.

One of the difficulties regarding equipment is that different local authorities have different ways of defining consumables and equipment. The only constant seems to be the £1,000 limit above which it is necessary to acquire DES approval. A useful method of allocating resources for equipment which achieves comparability between like departments has been used at the North East London Polytechnic. The number of full time equivalent students in each department is calculated and an arbitrary allocation of money per head is made. The system allows that certain students are more expensive than others and the sum per head is based on the amount the department had been accustomed to obtaining in the past. A certain sum must also be allocated to finance items which are shared by two or more departments or which are of use to the whole polytechnic. I believe that this simple fairly objective method is superior to the traditional one which was based more on personal

relationships, particularly the relationships between the Principal and the various Heads of Department.

Maintenance of equipment is a factor which must not be ignored and the cost of maintenance contracts must be taken into account. Support staff may also be needed for certain items. Again the depreciation of equipment must not be forgotten, the life of some electronic items is now limited to five years, so £50,000 worth of this type of equipment needs replenishing at the rate of £10,000 per annum.

Academic Boards must remember that local authorities are less happy to agree to proposals which involve committed expenditure year after year than they are to agree to single payments. This should be borne in mind when suggesting an increase in the staff establishment - an academic appointed at the age of 30 commits the local authority to an expenditure of about £120,000 if he chooses not to resign before retiring.

Turning to the subject of class contact hours, it has always amazed me that junior and inexperienced academic staff are expected to teach for 20 hours per week whilst Principal Lecturers have to teach for about 14 hours and Heads of Departments have to teach for only about six hours. It seems to me that the position should be reversed. The only reason for the current practice seems to be that in the past the great bulk of staff were employed at the lower level. If we seem increasingly, however, to appoint and promote more staff to higher grades (so that there are more teachers in the higher than in the lower grades) then perhaps it is time these members of staff did the most teaching.

Changing teaching methods have an effect on staffing systems and conversely. The method of basing the number of staff needed on average hours worked according to the timetable has had to disappear as teaching takes place increasingly in small groups. This leads to staff working long hours and inefficiently. Therefore the concept of basing establishment calculations on student staff ratios has been developed. It is salutory to note that, taking the recommended ratios of 7.5:1 - 9.5:1 there appears to be a surplus of something between 1,000 and 3,000 academic staff in the polytechnics taken as a whole. However, curriculum development seems to have become a permanent feature of polytechnics - more so than in the universities - so it seems justifiable that an additional allowance should be made for staff involvement in this area. A departmental allowance of two full time staff might be adequate, although, of course, in reality curriculum development work would be shared among most of the staff in the department. The implementation of student staff ratios is not too difficult in a growing department, but it is a problem in a department which is shrinking. One advantage which might accrue from the achievement of the recommended SSRs is that the need for Regional Staff Inspectorate approvals might be diminished or even abolished. On the assumption that most polytechnics are overstaffed the obvious conclusion is that the students are being taught better, or at least more, now than they will be in the future if recommended

SSRs are achieved. The students who attend polytechnics tend to be less academic than those going to university and there may be a real need for them to be taught to the extent that they are at present. If we improve the SSR (in financial terms) we may also increase the failure rate among students. This may imply that we have to adopt the hard line of the survival of the fittest - that it does not matter overmuch if the weaker students fail.

The use of the SSR system has an effect on teaching method. The main decision to be reached concerns the number of contact hours staff should have with students and the number of hours students should be taught. The size of the teaching group is important. If the average group size corresponds exactly to the SSR, then staff contact hours will be equal to student contact hours. If the group size is twice that of the SSR, staff hours will be half those of the students. It is not always realised that lectures for hundreds of students at a time are no antidote to tiny tutorial groups when total student group size is averaged out. The groups which really matter in reaching SSRs are tutorials and seminars. It seems to me that in future the tutorial system will have to change. Those run on a very small scale will have to be very short - ten to fifteen minutes at the most. We must also remember that Heads of Department are included in the SSR calculations - another reason, perhaps, why they should be expected to do more teaching.

The redeployment of both staff and buildings is a matter of some concern. What should be done when the demand for a course falls, and the staff and buildings become under used? Whether a new course should be set up solely to redeploy them raises the whole issue of course development. However desirable it may be to find a use for existing resources, it is not a sufficient reason for the development of a course, and it would be better - and cheaper in the long run - to invoke the golden handshake. Alternatively, staff could be employed on a contract basis, with rather higher salaries, as with unestablished Civil Servants, so that they automatically leave when student demand for their specialism falls.

The universities have tried to set up norms for the calculation of non-teaching staff numbers. One publication suggests that the ratios of technical staff to academic staff in certain areas is 1:1 or 1.1:1. It is also suggested that there should be one secretary for every five members of the academic staff. However, local authorities tend to be unhappy about any increase in administrative staff. It is therefore preferable if the local authority can be persuaded to make cuts in estimates in terms of a figure, leaving the academic board and the governors the freedom to decide where economies should be made. Academic Boards must avoid the tendency to forget the necessity for other staff - receptionists, groundsmen, maintenance staff, etc. These are the people who create a sense of comfort in the college and academic boards should not be tempted to over-economise in this area.

Academic boards are in a crucial position. If they have little regard for the cost-accounting of any proposals, they lose all credibility, yet if they do exercise restraint in their proposals they will receive too little and never

be able to compete with the universities that are, in my view, extravagantly supplied with material resources. This is certain to have an effect on student intake. However exciting our curriculum developments may be in the polytechnics, the average eighteen-year-old student is more likely to be attracted by the excellent social facilities that many universities are able to offer, when these are lacking in the polytechnics. "

Discussion Arising

The comparability of polytechnics and universities for student staff ratio purposes stimulated animated discussion. Conference members suggested several reasons why polytechnics should be allowed a more generous SSR than the universities: research assistants were regarded as staff by the local authority whereas in universities they were categorised as post-graduate students; having many less able students, polytechnics were essentially "teaching" rather than "learning" institutions, and therefore their students needed more class contact time; polytechnic staff devoted a larger proportion of their time to curriculum development than university staff. Other members, however, did not agree: they suggested that even in universities research assistants had to be supervised by academic staff and no allowance was made for this; there was no reason to teach students for longer hours simply because they were less able - one did not do this with lower steams in schools. Dr. Bloomer commented that he doubted whether the local authorities would review their research policy - it seemed likely that the bulk of polytechnic research would have to be financed from outside the institution.

One the question of whether Heads of Departments should teach, Dr. Bloomer s view was that they should - it would give them an opportunity to have closer contact with the students and they would appreciate the problems of their staff better. They would be able to make time to do this by delegating more administrative duties to their junior staff and relieving them in part of their heavy contact hour commitment.

I W Hannaford,
Assistant Director,
Kingston Polytechnic

STAFF DEVELOPMENT: PRACTICE

"When I was here in the Autumn I uttered a few innocent remarks about the ACFHE/APTI document "Staff Development in Further Education" and within minutes the staff had produced an avalanche of copies and people were up half the night reading up on the subject. I believe that lately Humanities and Social Science Departments have been experiencing a similar interest amongst students for, of all things, sixteenth century witchcraft and astrology - although I fear that such an interest will suddenly cease when streaking becomes established as a legitimate cult. Be that as it may, the last time I was here I was marked out as a keen management man. What you are about to see is the trapdoor opening under a Trojan Horse!

But first I must begin with the title "Staff Development: Practice", and describe to you as briefly as I can the present practice at my own Polytechnic. I think my colleagues here today from Kingston would agree with me that staff development is practised there but there is no policy on it - if by 'policy' you mean a precisely defined set of objectives for a carefully defined activity. Our policy is that we have no policy'. Ours is not yet a legal rational system; it rests on personality. It is a system in which 'the academic' is not clearly distinguished from 'the administrative', and 'the academic and administrative' are not clearly distinguished from 'the political and the social' - although we all claim with the loudest possible voice that they are. I suggest that our experience is not unique. We start then from the hypotheses that the Polytechnic is not a simple organisation capable of being squashed neatly into an organisation chart, and that staff development is too complex a human activity to be written down in a tortuous handbook. All I can say is that at Kingston we try to recognise our deficiencies daily, and to do something about staff development as best we can. These are some of the things we try to do:-

(a) Interviews

The candidate's first impressions of the Polytechnic, and Polytechnics generally, are gained from newspaper advertisements, initial interviews, and final interviews for a post. The advertisement, the job specification and the form of the interview should take are matters for preliminary discussion between the Head of School and the Director, in the light of the School and Polytechnic establishment requirements, the teaching need, and staff student ratio criteria. This process is not rigid and inflexible. It is diagnostic and critical, and it seeks to

cultivate a Polytechnic attitude towards recruitment and development of staff. Internal promotions are discussed in the same way, and in most cases are advertised for open competition. When an applicant comes to the Polytechnic we try to ensure that he is treated properly. Preliminary interviews in the Schools should give him the flavour of the daily life of the School, and he should be given an opportunity to meet his future colleagues informally before going on to the final interview. All final interviews for posts to Kingston Polytechnic are chaired by a member of the Directorate. The interview panel consists of the Head of School, one member of the academic staff of the School, an independent member of the Academic Board, and where special needs arise independent professional advisers are brought in from other parts of the Polytechnic, or from academia, industry or commerce.

Records of the decision taken and promises made to the successful candidate are recorded, before the formal appointment forms go to the Director for approval. The Chairman of the panel usually discusses each case in detail with the Director, and interview notes and agreements are placed on the candidate's file to form part of his personal record.

At all stages in the interview procedure an attempt is made to ensure that there is an open discussion, a fair and impartial appraisal of all candidates, and proper conduct in the treatment of the visitor to the Polytechnic (there are far too many examples of discourtesy towards applicants for posts in Polytechnics and Universities).

At the end of the first year of appointment the member of staff will be interviewed again by a member of the Directorate (usually the Chairman of the original panel) to hear complaints, criticisms, impressions of his first year's experience.

(b) Induction

Induction (awful military word) has its social, as well as its professional connotation. Our Director delivers a State of the Nation message to all the staff at a ritual assembly at the beginning of the New Academic Year. In this talk he reviews the achievements and failures of the past year and the prospects for the future. Sometimes the occasions are gloomy and pessimistic; sometimes they are optimistic. They are never unrealistic. Senior and junior staff appreciate this occasion to assemble.

All Schools are encouraged to hold parties for first year student entrants to the Polytechnic, and this is often an occasion for introduction of new staff to them and to their colleagues. The Directorate are expected to attend these induction ceremonies.

Because of the diminishing numbers of new teaching staff to Polytechnics the emphasis upon in-service training for new staff is likely to change. In the future, possibly, we will be expected to do more for the people who are already in post and have experience of past practices and different institutional arrangements. At Kingston we run an induction course for all new staff during their first year, and they are expected to attend seminars weekly. The course is not a training course. There is no syllabus. New staff are simply given an opportunity to discuss their problems with people who have experienced or who are experiencing similar difficulties in the teaching/learning situation.

(c) Conferences/Symposia/Participation in Local and National Organisations

People are encouraged to attend Conferences and Symposia, and to play their part in local and national organisations. These activities are constructive if participation leads to more creative teaching and learning within the institution, and within the Polytechnics generally. I am not so sure that they always do lead to such desirable ends.

(d) Sabbatical leave, research and consultancy

Sabbatical leave is granted with and without pay. During the period 1970-1973, 297 papers were published and 94 Higher degrees were obtained.

(e) Junior staff participation

Every effort is made to encourage junior staff to participate in Polytechnic activities. The Director keeps a photograph album of all teaching staff and members of the Directorate are expected to know as many staff as possible in the institution. When vacancies occur on senior Polytechnic committees, we try to obtain a balance of representation from junior and senior staff so as to cultivate as mixed an experience as possible.

(f) Participation in drama, theatre, music, sport: associational bases for staff development

The Polytechnic has a large number of strong voluntary associations supported by the Staff Association, the Students' Union, and the Director. There is a regular programme of theatrical, musical and sporting events throughout the year. Over 250 staff and students are learning to play a musical instrument. There are over 60 active Student Union societies.

Any one of these aspects could occupy us at length. Kingston Polytechnic is an organisation with a great number of deficiencies. Each one of the points I have covered - and more besides - are of very real concern to all of us involved in it. We are not satisfied with it. It abides by no organisational principle; it observes no neat conceptual staff development model. It would be dishonest to say otherwise.

Having cleared the ground and established myself as having no claim to being a staff development expert, and no access to magic formulae, let me now open the trapdoor and drop from the Trojan Horse .....

Staff Development: Theory

Since the Reverend Dr. Tolley's address on "Staff Development in Further Education" at the Annual Meeting of the ACFHE in February 1971, the gospel of personnel management and personal development has spread like wildfire through our Colleges. In 1972 a Joint ACFHE/APTI Working Party encapsulated Principal Tolley's ideas in a pamphlet which you will be studying this week - "Staff Development in Further Education". Over 8,000 copies of this work have been sold to date - up and down the country people have been churning out questionnaires, attending conferences, and producing beautiful policy documents on the subject - all very worthy activities no doubt. And, as this has been happening, subtly and insidiously before our very eyes, the coach has been coupled to Delaney's engine powered by the Pooling Committee memorandum on student/staff ratios, the White Paper and the recent DES circular (2/74), and the primitive partial definition of staff development given in the ACFHE/APTI document viz "part of that much advertised need to make the best use of our resources", has become the definition, which, if we do not pause for thought, will consume us all like a malevolent parasite.

In further education today - as in many other areas of activity - things are not always what they appear to be. "Skim milk masquerades as cream". What I want to do this morning - very simply - without rancour - is to take full advantage of one of the aims of the FE Staff College set out in your programme and your Deed of Trust:

> "To provide an opportunity for the individual to withdraw from the details and pressures of the daily and annual cycle of events and to think what he is doing, why and how, to identify the important problems and pose the important questions, to see wider horizons and to develop the breadth of outlook, attitude of mind and authority to stimulate and inspire teaching and research."

And then, when I have completed my criticism return to discuss effectiveness, efficiency and administration.

What is Staff Development?

If we are to implement a policy for staff development in further education, we must first be sure in our own minds that we are satisfied with the answer given to this question in the two documents before us this morning. The aims, the methods, the policies, the organisation, the facilities and the recommendations follow logically from what is said in the opening section on pages 3 and 4 of the ACFHE/APTI Report:

Very briefly, the Report enunciates the following propositions, which have been accepted widely as self evident truths:

- Education is a labour intensive industry. Is it?
- Amateurism is rife in educational administration and personnel management is virtually non-existent. Therefore, correct it!
- Staff (academic and administrative) are an under-developed 'Resource'. Therefore develop the resource!
- Educational institutions have objectives to meet and these objectives must be made to conform, cohere or correspond to individual needs. (Define objectives, identify needs).
- A more rational approach is necessary to improve efficiency and effectiveness and to achieve optimum returns (Plan).

Accordingly, we are told that colleges should set about analysing their teaching staff according to grade, qualification, further training, and salary differential. We are assured that no basis can exist for planned development until work (teaching, administration, research and external duties) is classified and categorised, job specifications prepared, and regular appraisal instituted.

> "There must be a policy of staff development grounded in an understanding and appreciation of what the College is about."

These objectives may be achieved by teacher training, acquisition of subject knowledge, assumption of administrative and political responsibilities, and careful consultative control by Governors, Principals, Academic Board, Heads of Department and Staff, and possibly through the appointment of a Staff Development Officer (SDO) not SOD or GOD, who would initiate and be responsible for the operations end of the business.

It is clear from this that we have been presented with a neat engineering model of inputs and outputs designed to fill a need. "The doctrine of needs is a bottomless bloody pit." It is logical, deductive, rational, systematic - dull, boring, and dangerous. It applies a mixture of homespun Pennsylvannia/ Dutch Taylorism, 1930's organisation and systems theory (Hawthorne and Mayo), and general management approaches of the late 40's to situations which, to say the least, are volatile, fluid and incomprehensible to most of us. We are being asked to accept POSDCORB, MBO and PPBS - essentially the answers of logical positivism - uncritically (and this is my main concern) as the best in the circumstances - and at a time when these approaches and solutions are being ditched by management outside. Professor Lawless in his "Effective Management: Social Psychological Approach" suggests to his students in 1973 that all research and writing on management and organisation done before 1960 is of historical interest only. All I ask at this point is that as academic who are supposed to be in the vanguard of change, we remember the warning!

And what of the propositions enunciated in the document? At first sight the opening quote from Disraeli seems to excuse the whole enterprise, and seems to provide a comfortable way out for the authors -

"Change is inevitable. In a progressive country change is constant."

Staff development is needed to help us adapt to change. But Disraeli himself says, "What we anticipate seldom occurs; what we least expect generally happens" - Raymond Aron in "Progress and Disillusion" shares his uneasiness about change when he says, "Neither in science nor technology can the future be reckoned as a mere extension of the present, but rather it must be seen as a kaleidoscope of new creations and mutations, to a large degree unpredictable." What worries me is that the ACFHE/APTI proposals, if implemented, may lock us in at a time when we need to be most flexible - our formative years. That is my first concern.

My second concern is with the assumption that the education service is a business or industry. The pamphlet tells us that 60% of college expenditure goes on salaries and superannuation of teaching staff, and that the ways in which teachers are used and the quality of their teaching may determine the efficiency and effectiveness of a college. But, efficiency and effectiveness are not only the criteria by which we must judge educational institutions. It is quite possible to argue that efficiency and effectiveness are often the very factors which inhibit, prohibit and restrain the full educational potential of every man and woman. I am reminded that the medieval universities of Northern Europe of the 13th and 14th centuries - from whence sprang the influential scientific and technological changes affecting us today - were inefficient, ineffective, inhibited by dead beat professors, uncouth, violent and radical students. (In 1398 the University of Angers prohibited students from carrying arms and interrupting lectures.) And yet, these places were vigorous and exciting. (See A.B. Cobban - "Episcopal Control in the Medieval Universities of Northern Europe.")

For those of us, old fashioned though we may be, who "look to the highest realisation of a social institution downwards rather than from its rudimentary beginnings upwards", the tests of ratio and coin are poor substitutes for responsible action as members of social organisms, "in which each contributes to the better being of all the rest." It was on this foundation that FE was built in the United Kingdom. It developed in an ad hoc fashion with diverse ends and objectives. It did not embrace the doctrines and dogmas of a clapped out "science" of management, and it came through it all relatively unscathed, and better prepared to deal with contemporary problems than many other social organisations in our society. Most of us here today already live in what George E. Berkley in his "The Administrative Revolution: Notes on the Passing of Organisation Man" has called the "post bureaucratic paradigm" - loose, amorphous, sprawling organisms, ephemeral amoeba-like units constantly forming and reforming to meet changing economic and political circumstances. If you don't, I do.

We in further education do not need to be futurist visionaries to identify Daniel Bell's "servers of the servers", the pre-eminence of the professional and technical classes, the ever-encroaching development of systems analysis, the increasing tendency of Government to establish provincial and national goals to correct the past and plan the future. Tomorrow is here. And we do not have to spend hours pouring over J.K. Galbraith's "New Industrial State", to recognise the new culture, based on efficiency and effectiveness through the application of scientific method to management, which is driving us all into the technectonic society and the technolizations of man. We can spot it on the faces of the escapees and adapters - the students - who are withdrawing into our institutions to avoid or make meaningful the new society, and they are coming to us in larger numbers tuned into a new morality, demanding new meaning and a new educational experience - and most of us are incapable of communicating with them. And it is going to get worse (or better) as the School Council recommendations begin to take effect, as the clientele in Polytechnics begin to shift from an elite clientelle to a mass clientele, which will most surely happen if and when the credit, unit and modular systems are introduced on a scale likely to satisfy the criteria of the White Paper. For those of you who doubt, read the Swedish U68 Report, The Wright Commission Report on Post Secondary Education in Ontario, and the Carnegie Report (US).

What I am saying is that we should be very careful not to adopt the recommendations of the ACFHE/APTI Report in our institutions without thinking very carefully about the teaching situation. I believe that staff development is dependent on student development. I do not opt for the proposals worked out in the document because they manage to avoid the problem of the human dimension - particularly the teaching dimension. We all know that our trump card in Polytechnics is supposed to be a special kind of teaching relationship we have with our students - and I fervently believe that this is true. But this fact is being overestimated and it will not sustain itself unless we cultivate our teachers in a way that we are not doing at present. We tend to promote away from the coal face; our best people receive recognition by being made Heads of Departments. The young inexperienced lecturers are cast adrift amongst young inexperienced students, and work themselves away from them. This is the core area of the problem we are being asked to discuss, and I do not think that it is being dealt with realistically in the document before us. Those of you who read 'The Times' will have seen Professor Chris Argyris' latest attack on rigid organisations and excessive dependence on numbers and information systems. A too narrow use of these systems is deadly and "when people conceive of numbers as being more real than any other kinds of information then subordinates will MAKE them real, even though they're lies". It is this aspect which frightens me about this document - this coldly, calculative emphasis on measurable efficiency and administration; and paradoxically it is the aspect which excites me - because in these infant institutions we still do have an opportunity to follow a path which is our own which leads we know not where.

In conclusion, may I quote again from 'The Times'. This time the obituary to Sir Robert Watson-Watt, the developer of thunderstorm location by radio. Watt attended the Damacre Road Board School in Brechin at the turn of the century and years later on his return there, famous and fortunate, he said, "Bessie Mitchell did more than any other teacher to make me whatever I am". Where and who are our Bessie Mitchells? Is this the right practice for finding them?"

Discussion Arising

promotion

The problem of good teachers being promoted to positions in which they do less teaching was raised. A member suggested that the good teacher should be rewarded in a way which would not take him away from the classroom, and that staff should be appointed to Heads of Department for possessing skills that will be useful to them in their future role rather than teaching ability. Another member disagreed, remarking that a good teacher would make a good Head of Department in any case. Mr. Hannaford described the situation in his own institution where the demarcation between the academic, the administrative and the political/social was blurred. Some people would get promoted for their teaching skills, others for their administrative ability or their political/social capabilities. Some of the administrative burden was removed from the Head of Department by the creation of divisional (faculty) administrative officers, usually young graduates who dealt with such matters as the calculation of student staff ratios.

appraisal

The discussion then turned to methods of assessing teachers. Mr. Hannaford described the student participation in teacher appraisal which he had experienced in Canada. At the end of the academic year students completed a multi-choice questionnaire on the staff which was published and circulated as a guide for the incoming students. A description was also given of a less direct method used in Quebec which had the similar effect of making the teacher aware of his deficiencies. Under this scheme students were asked to complete a questionnaire which was immediately processed by computer. The final processed account was the only version the teacher saw, and he could keep it private if he wished.

Dr D W F James,
Principal,
Glamorgan
Polytechnic

THE COSTING AND CONTROL OF POLYTECHNIC RESEARCH

"It is vitally important to think in terms of the cost and control of research in polytechnics Some of the reasons may seem self-evident, but there are too many people in out institutions who have no awareness of these matters.

why research?

I propose to start from the premise that an institution of higher education with a strong vocational bias, such as the polytechnic, should engage in research. Reasons include the fact that there is no better way for staff to keep up to date than to be concerned in the development of their own subject. In order to do research staff must at least read the current literature. This creates a lively mind, and stilulates attendance at conferences. I would also argue that the expertise and physical resources of an institution of higher education should contribute to the needs of society, including industry and commerce, and this can only be done by engaging in research, consultancy or development work for industry. Furthermore, research is a valuable staff development tool. It is also often asserted that research has a direct beneficial effect on teaching, but I shall leave this point open for the present. It is relevant to note that when the polytechnics were set up DES Administrative Memorandum 8/67 contained an appendix on research, stating that it was essential to the proper fulfilment of the teaching function; that polytechnics should carry out research for industry through ad hoc research contracts with industry and contracts from the Research Council; it mentioned that research should be carried out without adding to the polytechnic's permanent establishment, that research assistants were not to be employed on any considerable scale, and that staff should have opportunities for working for higher degrees. In my view, this Memorandum was a self-contradictory document, and I believe that the research role of the polytechnics has never been properly defined, even by the institutions themselves.

cost of research

In teaching circles generally, the high cost of research is not realised. The following model, which is not far removed from the situation which actually exists at Glamorgan Polytechnic, demonstrates the real cost of research:-

Assume 200 staff
staff attendance of 30 hours per week
normal class contact hours of 5 per week, remainder of time being spent on preparation and other duties.
50% of staff engaged in research.

If there is a 5 hour timetable allowance for research, and another five hours is taken for research out of the non-teaching attendance time, there staff engaged in research spend 10 hours ie, one third of staff time of research. Taking an average salary of £3,000, the salary cost of research is 33 x £3,000 ie. £99,000.

Another factor usually disregarded is the cost of overheads; heating, lighting etc. It would not be inreasonable to assume that 80% of staff costs be taken as a reasonable figure, ie, £79,000. Bearing in mind that each researcher is likely to spend at the minimum £200 on materials and equipment, the total would amount to a further £20,000.

Therefore the annual cost of research amounts to £198,000 even before the depreciation of equipment and the cost of support staff is taken into account. (Yet when I carried out a survey at Glamorgan, most people estimated the cost of research on this scale at about £40,000.)

Taking the model a little further, if we assume a student staff ratio of 8:1 and a typical student unit cost of £1,400 per annum, the basic budget of the institution will be 200 x 8 x £1,400 ie. £2,200,000. Therefore, if 50% of the staff engaged in research activities, about 10% of the total budget will be allocated to research.

The latest returns to the DES show that polytechnics are spending 5% - 10% of their budgets on research. Therefore the total sum spent each year by all the polytechnics must be considerable, and probably far more than most people estimate. In view of the high cost involved, we must question whether it is reasonable to allocate this proportion of our budget to research, and whether we are getting a sufficient return for that allocation.

justification

Even if we assume that it is not unreasonable to spend approximately 10% of our budget on research, it is essential to justify and control ongoing research. It is necessary to have a justification for any project before it is commenced, and progress and output are two elements of control which must be considered critically and constantly. The possibility of projects being financed from outside the institution is another factor which should be examined.

the researcher

The justification of a project is an emotive topic, particularly if the researcher sees it as a control element. The cry of 'academic freedom' is often produced as a reason for research, but I prefer to think in terms of 'academic discipline' and 'academic rigour'. I have a cynical view of the personal reasons often given for doing research. Researchers are of several types: the 'fire in the belly' model; the 'publish or perish' model; the 'I think I should' model; the 'I hope I can' model; the 'boss expects it' model. The 'fire in the belly' type is the real researcher worker. His imagination is captivated by research and is unable to refrain from it. Those who fall into the second category generally do a great deal of research, selecting projects which will yield quick results whether or not they are of any real value. Research for him is a means of establishing a reputation and achieving promotion. If controlled, this type can do useful work in the institution, although proper control may be difficult. Researchers who fall into the 'I think I should' and 'I hope I can' categories often start projects with a flurry of enthusiasm but later their interest and activity often wanes. With encouragement, many may develop into the 'fire in the belly' type, but others will never make good researchers and should be discouraged. It is sometimes difficult, however, to make this judgement. People who do research only because they feel it is expected of them should be stopped as soon as possible.

the project

No expenditure should be permitted unless a project is justified. The researcher must identify his problem in clear terms, consider the phasing of the work and the resultant implications, examine staff costs, equipment costs and other recurrent costs and consider the question of relevance, relating it to the cost element.

The process of justification can be carried out in a variety of ways. The approaches often used by the Science Research Council and industry is particularly valuable. Following the identification of the problem, a feasibility study is carried out, followed if necessary by a preliminary study before launching into a full scale research study. There is also a great deal of benefit to be derived from research being undertaken as a team effort. The academic tradition of the universities encourages the lone research worker assisted perhaps by a few research students and often the regulations for higher degrees encourage the continuation of this model. To some extent the polytechnics have assumed that they should adopt the same patterns of the individual research worker, or, to most, the small departmental group. Yet the success of industrial research can undoubtedly be attributed to the fact that it is a team approach - an interdisciplinary approach.

publication

Once a research project has been justified and allocated resources, it must be subjected to some form of constant monitoring. It is perhaps the most difficult problem of all to know whether progress is being made, and if so, whether it represents reasonable value for money. The university tradition has led us to think of publication as the only measure of research effort and output. Publication though important, does have certain traps. We tend to have regard for the quantity of papers produced by a researcher rather than their quality. Yet a singly paper of substance, produced after ten years' research can be of greater value than ten papers produced in a single year of work. Therefore publication is an extremely tenuous basis on which to appraise research work. Another problem concerning publication which has emerged over the last 15 years is the proliferation of journals in which publication may be unreferred, for which contributions recieve payment or for which articles are solicited. Therefore, valuable as publication may be, we must be critical of it as a method of assessment.

internal assessment

Within the context of the polytechnics, the control of research can be administered through internal assessment. The polytechnics are in a totally different situation from the universities. The universities have, generally, a long tradition of research on the model of the lone research worker responsible only to his professor. They often work through only the more traditional and well established learned societies and their publications. The polytechnics are not part of this tradition. They are concerned with more applied, vocational work and perhaps tend to use the newer journals more readily. Therefore the internal assessment of polytechnic research is important. A research committee can play a valuable role. I believe that just as it is important to justify the initiation of a research project, so it is also necessary to justify its continuation. Therefore there should be a regular output of progress reports. These should not simply be written for the benefit of the Director to assure him that a particular researcher is not frittering away his time, but should be considered carefully

by people capable of undertaking a critical examination. The opinion resulting from that examination should be made known to the individual who produced the report, and he must be prepared to defend his work to his colleagues. Progress interviews and discussions with a group of people concerned with the development of research in the institution can also pay a valuable part in assessing whether the output justifies the expenditure on the project. The purpose of such discussion is not to be destructive but to be helpful - to encourage those who fall into my third and fourth categories of researcher. We should also encourage our research workers to expose their projects in a more general way to the institution by means of lectures and seminars so that staff can benefit from the experience and expertise of others who might be working in different fields, and to present their work at national and international seminars thus exposing their projects to a wider, more critical audience.

management responsibility

The management responsibility for the control of research begins at the point where it becomes necessary to decide that a project should be discontinued. This decision can be based on a variety of reasons.

It may be that the individual demonstrates that he does not have the ability to do research, and he should not be exposed to the distressing situation of trying to do something at which he cannot succeed. One must also recognise that just as some people find they cannot do research, others discover that they do not want to, and these too, should be told to discontinue. Perhaps the most distressing situation is that of the enthusiastic research worker who, while possessing the basic skill, lacks originality. It is the responsibility of the management of the polytechnic not to waste public funds, so, although the situation may demand great understanding and a sympathetic approach, the Directorate must be firm in deciding when research projects should be discontinued.

the research budget

Returning to the issue of whether 5%-10% of the total college budget is a reasonable figure to devote to research activities, we must also raise the question of what proportion of the research should be funded externally. In the polytechnics' anxiety to get research underway, too little attention has been paid to seeking the support of bodies such as the Science Research Council. This may be due to a belief that these agencies are more interested in fundamental, basic research than the practical, vocationally orientated research carried out in the polytechnics, or a lack of confidence - a diffidence about subjecting our schemes to critical examination by outside bodies and fear of a rebuff, or, indeed, simply the influence of 'the system'. I hope that this reluctance to seek funds from outside the institution will change over the next few years.

calibre of research workers

Many excellent research workers keen to do applied research are attracted to universities and to industry because of the good facilities and salaries available. The polytechnics must now attract some of these people to help fertilise the talent they already possess. The Government must recognise that if polytechnics are to make an important contribution to research, the salaries offered must be competitive.

honesty

The situation in which polytechnics are forced to be dishonest in order to acquire research equipment must also be rectified. At present, if an item of equipment costs over £1,000 permission to buy it must be obtained from the DES, although the universities are allowed to spend any proportion of their budget they wish on research equipment. As a result, polytechnics are tempted to say equipment is needed for teaching, when it is really required for research. If research in the polytechnics is to be encouraged, as Administrative Memorandum 8/67 leads us to believe, the polytechnics must be allowed more freedom to allocate part of their capital budget on equipment for research, and the present dishonest situation must end."

Discussion Arising

initial difficulties

The comment was made that the polytechnics could not be expected to be efficient in their research until they had been engaged in it for a few more years. The speaker saw the role of research at present as mainly a staff development tool. Dr. James agreed that research was useful for staff development adding the caveat that not all staff should be expected to show an interest as not everyone was suited to it. He said that while the polytechnics could not be expected to have a university ethos, it was important to move towards maximum efficiency as quickly as possible. A member suggested that polytechnics appointed researchers with university backgrounds at the level of reader or professor, paying them high salaries. They would be able to organise research more effectively and attract funds for research from outside the institution.

contact hours

It was agreed that polytechnic students were 'over-taught' and that class contact hours should be reduced. The students would be able to spend the additional time in private study and the staff would be able to devote more time to research. However, Dr. James did not agree with the suggestion that term length was too long.

R Sturt,
Assistant Provost,
City of London
Polytechnic

SOME ASPECTS OF POLYTECHNIC RESEARCH

"Comparatively inexperienced" members of academic boards had been invited to this study conference on polytechnic developments, but one concluded, on reading the list of members, that if this had been an objective the failure to achieve it was absolute.*

"It is however in accordance with that spirit that I put to you the developments within an institution comparatively inexperienced in regard to research tradition in the subject fields outside science and technology, in order to show how we have attempted to suggest a framework within which ongoing research and "new" research in less fashionable areas are brought together for consideration as we seek to create a balance of research activity."

polytechnic research

Three fundamental questions concerned us. First, what is research? Second what are we doing about it? Third, where are we now?

There are many different interpretations of what research actually is, but, while it is often mentioned, I have discovered no real definition in any educational document dealing with the management of the polytechnics, although one of the stated reasons for our being set up was to do research. Yet many people do not regard research as a proper function of polytechnics. Sir Peter Venables said in 1971 that the most important function of the polytechnics was teaching and it would be uneconomical for them to attempt any substantial development of research alongside the universities. Professor Bottomley of Bradford University has demonstrated that there is enough space in the science and technology departments of universities to accommodate all the undergraduate and postgraduate work in these subjects of the 30 polytechnics. The third report of the Expenditure Committee of the House of Commons in November 1973, entitled 'Postgraduate Education', probably sought to correct the balance between universities and polytechnics by making two interesting recommendations. First, it proposed a limitation in the number of pre-experience postgraduate research student places, possibly excluding all full time students of this type. Second, it suggested that new ways be sought to enable the post-experience student to undertake postgraduate research. The Report also indicated that polytechnics might be more suitable than universities for post-experience students, especially with regard to short course work. Again, while not offering a definition of research, the Secretary of State said in July 1973 that the Polytechnics were concerned with research although it would differ in nature and degree from research carried out in the universities. She said that undoubtedly the

*The speaker may have a confusion here between seniority and experience (Director of Studies).

polytechnics would engage in some fundamental research because in a few subject areas certain of them would be among the best places for this. However, the polytechnics would remain primarily teaching institutions, and, while it was right that staff should engage in research to strengthen their teaching ability, she envisaged their main research effort as being in a field of concern to industry, business and public services in a regional or even local context.

To sum up, the statements make three assertions in respect of Polytechnics: some fundamental research to be expected where excellence is signalled, some research essential for staff to strengthen teaching, and major research effort in fields of concern to industry, business and public services.

City of London Polytechnic

What did we do at the City of London Polytechnic to explore this situation? Our Research Committee set up a working party of five people 'to look at the total structure as regards the taking of research decisions'. Our research activity was and is considerable. The 'Research Review' revealed that in 1972-73 115 students and 50 staff were registered for research degrees, with about 40 research degrees awarded each year mostly in the field of science and technology. The working party had representatives of all our four Schools: navigation, art, science and technology, and business studies, and looked at research in as many aspects as it could. Among the considerations were these:

(a) Why should a polytechnic undertake research at all?
(b) Research publication as a career incentive.
(c) The prestige attached to a strong research tradition.
(d) Whether teaching was related to research, and, if so, how this could be proved.
(e) The need to achieve a balance of research across the polytechnic.
(f) How we could encourage the development of research in areas where it was lacking.
(g) The effect upon research of any limiting of resources.

These questions remain to be asked today for many polytechnics. In answer to the first and most fundamental question, why should polytechnics do research at all, our working party agreed on four reasons:

(a) To stimulate teaching at all levels.
(b) To provide postgraduate students with a unique educational experience.
(c) To advance knowledge.
(d) To enable the polytechnics to attract high calibre staff.

If you look at these objectives closely you will acknowledge they are all subject centred. Wholehearted pursuit of these would give us more of the same. But one of the new factors was the desire of staff responsible for disciplines where there were no research traditions to formulate research proposals. These proposals arose not only from their own area of interest but

also from their thinking about education, about teaching methods and learning processes, and, of more immediate concern, about cross-disciplinary studies arising from fairly advanced work on a modular degree structure which involved 15 departments.

At this point the working party acknowledged that, whilst ongoing research with its heavy commitments of space equipment and research staff represented, at one end of the spectrum, an essential element of Polytechnic academic life, there was an equal and imperative need to stimulate research thinking and to encourage small group or individual work that was arising in pockets of the Business, Art and Navigation Schools. This was - and is - unco-ordinated, unsupported in terms of measured resources, and often ill-defined.

It must be admitted that investigatory work or probing of this kind appeals to most of us. Much of what is new starts there. But to encourage expansion of our total activity along these various lines would lead to problems. Little of the unco-ordinated work would command grants from research councils or sponsors. Another difficulty was that it would over-run the limits of academic programmes, as projects arising from matters such as user studies and operational analysis in the library system, the systematising of student records and of the use of accommodation could develop as the complex administrative needs of the polytechnic emerged.

resource provision by ILEA

The greatest problem would be that of resources, and our education authority, ILEA, has made clear its policy for the five polytechnics in London in the light of government constraints upon research posts. Its latest statement, in November 1973 - after our working party had reported - is designed to chill research activity in the polytechnics. In it Dr. Briault states that the polytechnics are themselves conscious of the need to encourage the development of research in disciplines other than science and technology, but in the light of the pressure on resources generally he does not think ILEA can reasonably be expected to increase the level of its provision of research fellow and research assistant support, at any rate for the time being. Taking the five polytechnics together, the cost of research staff in 1972-73 was £440,000 and the ILEA felt this expenditure justified an investigation into standards and levels of provision in other polytechnics. Research support took two forms: relaxation of class contact hours for full time staff, and the authorisation of the appointment of research staff. In 1961 the class contact relaxation for full-time staff was fixed at four hours per week for LII posts and above, and this represented 8% of the total staff effort by 1972-73. In the five London polytechnics 16 posts of Reader are also established with the approval of DES. In the light of its findings the ILEA decided to make no further allocations, and to re-distribute the 300 research posts.

research policy

The working party set out a policy which was adopted by Academic Council. We believe that its seven statements offer an instrument of measurement for research allocation:

(1) Research has an essential role to play in teaching and a substantial part of our resources should be devoted to it. In 1972 an untested claim was made that one-sixth of all resources was devoted to research.

(2) Polytechnic research must aim to cover a complete spectrum of the subjects taught within the polytechnic.

(3) Encouragement and support are necessary, especially in areas where no research tradition exists and in the processes by which educational innovation is carried through.

(4) An effective relationship must be sought between the research needs of science and technology and the projected needs of other disciplines. On the one hand, it was claimed, a balance must be achieved; on the other, it was asserted, a research reputation which attracts staff and students could quickly be lost if research activities were allowed to run down in the name of equality.

(5) The first criterion of all research should in future be that it supports teaching. Internal resources should be allocated when it is established that this criterion is met. This presupposes a greater understanding of the link between research and teaching, by establishing measures of effective teaching or by determining teaching failure at the tertiary level.

(6) The feasibility of proposed research involving expenditure must be established by means of a systematic questionnaire of the kind used by Research Councils but adapted for more general use of the polytechnic. Then it is necessary to establish what resources are needed to carry out the research. In view of the high cost of research, the expenditure necessary for a project must be realistically assessed before being put forward to the Resources Allocation Committee. In appendices to the working party's document we described the type of information which would be demanded. This is in two stages: the first asks the researcher about the objectives of the research and what relevant research is being done elsewhere. The second type of information required is a statement of the necessary resources for a project in terms of staff, technical and administrative aid, accommodation, equipment and materials, publications costs, computer time and the possible sources outside the polytechnic from which funds might be sought.

(7) It is essential to have a research co-ordinator. The scale and complexity of the work called for advice and information at every turn whether it was an individual research worker or a committee involved.

type of research

Where are we now? I think the first problem remains: what do we mean by research. Consultancy is a medium through which much of the research in the Business School is followed as it leads to sponsored projects and a close relationship with the City. Do we expect a highly disciplined approach, or is it a matter of probing further into one's subject, of experimentation and creativity as in the School of Art? Again, does definition matter? Must we establish criteria?

I believe it is necessary to do so. Not all published work is critical. Much is descriptive involving a great deal of patient information-gathering. If, however, research is to be one aspect of staff development should we not accept that the starting point may be low?

research and reading

A second problem is that of relating research directly to teaching. Where students are involved in a project the link is made but not all lecturers find themselves free to disseminate their own work and to keep up to date with other research publication in their field. Perhaps an opportunity should be given to have a kind of 'immersion' in research every so often, whether one is engaged in a project or not.

fashion

Research is subject to changes in fashion. The current interest among universities and polytechnics in designing aids for handicapped people is an example of this, but it also exemplifies the possibilities for each polytechnic of responding to the needs of its own community by planning part of its research effort consciously with this in mind. We are looking at the need for a deeper community involvement and the manner in which this could be expressed.

research collection

Other developments include the setting up of a research collection with its own guide to research resources within the polytechnic. The collection forms part of the library and learning resources service, and contains information about current research, research reports by staff, publications of national bodies, and directories of courses. Research methods have been the subject of enquiries, and staff development programmes are expected to include seminars designed to bring the new researcher in contact with experienced research staff.

The most significant step in increasing research awareness has been the publication of the Polytechnic's "Research Review" the second edition of which appeared in August 1972.

planning

Academic planning and the allocation of research resources depend each year upon the careful statements by departments of their needs and the analyses of space and other resources by the various committees of Academic Council. By this means the needs of research are being quantified as are all other activities in the Polytechnic. This is essential not only for the realisation of the next year's full and varied research programme but also for adequate provision to be made in the Polytechnic's Development Plan over the next decade.

There is little doubt that our resources will suffer in the next few years, but we should recognise that we are past the point at which research could be challenged as not being a proper activity for the polytechnics. Economy by research limitation is a barren path, and I think we would do better to look at the hold that research has in our institutions and to realise it cannot be abandoned.

Discussion Arising

consultancy

While acknowledging the value of consultancy work as a staff development tool, a member suggested that inexperienced staff should be discouraged from doing low level consultancy work and be paid well for it. Mr. Sturt agreed, but noted the difficulty of deciding where to draw the line between high and low level work. In general discussion, it appeared that there were various ways of regarding consultancy, which seemed to have a geographical basis. While consultancy work was regarded as desirable in London, particularly in the City - and this might include low level work as well as higher level work - outside London it tended to be regarded with disdain as 'fund raising' rather than 'fund using'. It was suggested that this situation might improve if consultancy were more closely related to teaching postgraduates.

postgraduates

Animated discussion took place on the subject of the place of the post-graduate student in the polytechnic. It was regarded as unfair that conditions for postgraduate students should differ between polytechnics and universities with regard to the ratio of postgraduates to undergraduates, and that universities were more able to get Science Research Council awards for their post-graduate students than the polytechnics.

K E Foster,
Superintending
Architect,
Architects &
Building Branch,
Department of
Education
& Science

THE DES AND POLYTECHNIC BUILDING PLANS

"This paper might be subtitled "To plan or not to plan", or perhaps "1966 and all that" because history for the polytechnics began with the White Paper of 1966. It might be worth taking a brief look at the "prehistory" of these institutions - the developments which took place before the White Paper. But before I go further I must add the caveat that because of the rapidly changing economic and political situation - when I prepared this paper I did not even know which Party would be in political control, let alone the special interests of Ministers - it is a most inappropriate moment to talk of building plans. Therefore I shall refer mostly to what has happened already rather than to future policies. I must also emphasise that the views expressed will be my own, and not necessarily in accordance with DES attitudes.

The growth in student numbers and building programmes for England and Wales is shown in Table 1.

TABLE 1.

Year	Full-Time Students (including those on sandwich courses)	Part-Time Students (about one day per week)	FE Building Programme (£ millions)
1947/48	40,400	198,600	£2.6m
1954/55	55,200	361,200	£5.5m
1960/61	117,500	487,800	£8.5m
1964/65	189,500	648,300	£19.5m
1966/67	194,000	712,000	£28m
1967/68	220,000	741,000	£21m

Thus between 1947/48 and 1960/61 student numbers had more than doubled and the building programme had trebled. By 1967/68 the students had redoubled and building programme expenditure trebled. In 1972/73 the number of full-time students had risen to 250,000 and the building programme was £27m. Before the recent cuts the building programme for the current year, 1973/74, was £50m, of which nearly half was destined for the polytechnics. According to the Design Lists, building programmes for subsequent years would have been about £60m. But until we know what resources will be available we cannot foretell future expenditure.

Before 1966 colleges and universities were adding to their existing buildings to cater for expanding student numbers. In 1952 Portsmouth, typical of many of the technical colleges later to become polytechnics, added an ambitious block to its original 1910 building. It was thought that this would cater for the city's needs in the foreseeable future. Further buildings were added in the 1960s and early 1970s for engineering, architecture, biology, management studies, and fine art. Most of these were of a functional, flexible nature. The universities of the 1950s and 1960s were concerned with development. Private architects were employed on grand development schemes and then a building moratorium occurred, which was welcomed since it provided a respite. Meanwhile the Colleges of Advanced Technology were intent on developing a "university ambience" instead of increasing productivity in terms of student output, hoping that they would be amongst those chosen to become new universities. Today we feel that several factors in the selection of sites for the new universities of the 60's were wrong; for example, the insistence upon a 200 acre campus which many now experience difficulty in developing.

The White Paper of 1966 suggested college groupings to form 30 polytechnics and there have been few changes from the original scheme. The DES set out provisional standards for polytechnic accommodation. There was a Joint Working Party with the UGC on teaching accommodation. This was useful for purposes of comparison, particularly in relation to non-teaching areas such as libraries, but Universities' teaching methods were too set and academic to be of much value. Having compared university development norms with FE colleges, the DES produced this table of approximate gross areas per full-time equivalent student*. The figures are intended for development plan use, to give maximum site requirements for planning purposes only.

TABLE II

Approximate gross areas (in square metres) per FTE student.

	Teaching	Non-Teaching	Total
Arts and Social Sciences	6	7	13
Science and Technology	9	7	16
Art and Design (below Dip AD)	11	7	18
Art and Design (Dip AD)	18	7	25

N. B. The above gross areas include the appropriate balance area additions (40% for teaching areas, and between 25% and 50% for non-teaching areas)

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*Polytechnics: Planning for Development" Design Note 8. DES Architects and Building Branch 1972.

It was shown in the 1970 survey of sites and accommodation that sites were not a major problem. The average notional area of 16 square metres per FTE was very close to the actual total, although there was over provision of specialist areas and a shortage of non-specialist space, and particularly libraries, communal areas and staff workrooms.

In late 1971 the DES called for development plans because of the need for an overall strategy rather than precise targets. This would enable the Department to look at national totals and to ensure that individual building projects fitted into a coherent pattern for each polytechnic. "Design Note 8" was produced to help polytechnics in the formulation of their plans. Most of these development plans have now been forwarded to the DES.

DES role

There are three aspects to the DES role in polytechnic building: i. e. development; management of the building programme; and other activities. Before dealing with these I should emphasise that since FE is a voluntary system it is far more difficult to make projections of student intake than it is in the schools sector. We must also bear in mind the apparent contradiction which exists between the freedom required by local authorities and colleges to plan individually and the need for overall control and co-ordination.

The Architects and Buildings Branch of the DES is in two sections. In the first there is the Development Group which produces design notes and similar publications and carries out such projects as the building of the communal block at Leicester Polytechnic. In the second section is the Territorial Group which is responsible for the approval of projects and liaison with local authorities.

development

The DES role in the development of polytechnics is to consider the development plan and how it will work in practice, having regard to the particular polytechnic. Where possible we try to help them overcome any inherent disadvantages. Different types of polytechnic have their various problems. The "city centre" polytechnics, such as Leicester, Newcastle, Portsmouth and Sheffield, with the benefit of good transport and nearby major facilities, have the disadvantage of lack of residential space, whilst outer suburban polytechnics, as in the case of Oxford, Hatfield and Glamorgan, have th advantage of a more spacious campus but with problems of transport and parking. Some polytechnics are special cases, not being in either of these categories: Bristol, for example, has a "green field" site; Liverpool is considering moving its site because of an urban motorway and has examined 18 alternatives, including the possibility of converting the Albert Dock; London polytechnics are faced with special difficulties of high land prices and accommodation costs.

When planning target numbers the constraints which exist in the polytechnics must be taken into consideration. Manchester and Birmingham polytechnics have accepted the fact that their major site will accommodate no more than

six or seven thousand students. Others, such as Oxford and Portsmouth, realise that their numbers will be limited by shortage of residential accommodation.

The rate of capital expnediture is, of course, another issue affecting polytechnic development plans. Also important is the amount of time taken to develop courses - in the past courses have taken longer to develop than was estimated. My view is that a 10% per annum increase in numbers is the maximum achieved in practice over a period of years.

Originally the DES was keen that the polytechnics should be on single sites in order that staff and students involved in different fields of interest would intermix. This objective is becoming increasingly difficult to achieve because of the association of colleges of education with polytechnics. We do not want polytechnics to develop a "walled campus". The aim is to achieve integration within the surrounding community.

It is important that the accommodation within a polytechnic should be balanced while it is growing. There is no purpose in building a huge library before there are enough students to make use of it. Conversely it would be a mistaken policy to build only specialist accommodation initially - communal space must be provided in the early stages of the polytechnic's development.

building programme management

All projects accepted by HFE Branch are first put into the Preliminary List for approximately one year. At this stage there must be an agreed academic and social framework. It is essential to have the support of local and specialist HMIs to the list of courses proposed.

The DES expects to have a rough analysis of the total area required and an approximate costing before a project is put on the Preliminary List. At the Design List stage more detailed work is carried out. However, we ask only for an outline of the function and the approximate areas. With this knowledge the architect is able to produce initial plans which retain flexibility. At this point we would be happy to hold informal discussions, giving advice, putting forward alternatives and suggesting where examples may be seen, both good and bad, of the type of accommodation being proposed. At the Design List stage we also ensure that plans conform to certain statutory regulations, such as fire precautions. At this stage it is important to remember the time lapse between the initial briefing and the completion of the building on the site. At best it will be five years and within this period many changes in staffing and courses will have occurred in the college.

From the Design List a fairly straightforward series of steps takes a project on to the Starts List. By this time a final plan must be produced, and official approval is required. Owing to complications resulting from rising costs, approval will in future be on tender rather than on estimate as in the past. In order to forecast tender prices, suggest where resources might best be spent on individual jobs and identify where resources might be mis-spent, we use a system of cost analysis. Our "Notes on Procedure" may appear to be over-

precise in their categories of accommodation and areas per FTE (full-time equivalent) student. However, they are intended only as a guide and are not statutory. It is quite possible for a project to include more than the suggested amount of space for any particular activity, e. g. libraries, but the excess will have to be made up by virement from perhaps teaching space. The total amount allowed for the project will not be increased.

other activities

The Architects and Building Branch of the DES does advisory and development work as well as having overall control of building resources. Library and catering specialists, engineers, quantity surveyors and furniture designers are available. Building bulletins and Design Notes are produced and we undertake a certain amount of research and development work. For example, we are interested in the provision of communal accommodation where staff and students can meet throughout the whole structure of the polytechnic, rather than the more usual students union facilities separated from the rest of the accommodation. Improved utilisation of space is another issue with which we are currently concerned. A bulletin on this subject will be published shortly, and a complete study of utilisation of space at Oxford Polytechnic has been carried out. The Laboratory Investigation Unit is studying the possibilities of flexibility by constructing the basic space for a laboratory and adding details, such as services and partitions later, without making them part of the actual fabric of the structure. This would include the use of bench-top sinks, and overhead pipes for services.

The uncertainties of the future make it difficult for me to give any indication of forthcoming developments. I can only hope that sufficient funds will be made available for building to re-start in July, in order to proceed with at least part of the plans already awaiting approval. Much will depend on the incoming Government's priorities in resource allocation. How large a share of the national cake can education expect to receive? Between 10 and 11 million people are now involved in full-time education. The only solution lies in achieving greater efficiency in the educational machine. Therefore the two factors which the DES regards as most important in building plans are flexibility and value for money."

Discussion Arising

the community

Why, Mr. Foster was asked, did the DES encourage the siting of polytechnics in towns rather than on green field sites? Surely this would increase the difficulties of student accommodation. Moreover, the community might not welcome the polytechnic. Mr. Foster agreed that, because of clashes between the personalities involved on both sides, the community sometimes objected to the appearance of a polytechnic in its midst. However, once the town realised the potential increase in facilities and business turnover the polytechnic would bring, its presence would no doubt be accepted. Mr. Foster thought it important for the polytechnic to be sited near industry which usually meant a town site.

accommodation

Asked whether it was cheaper to provide good social facilities for non-residential students than residential accommodation, Mr. Foster assured the conference that this was certainly the case. With a study-bedroom costing more than £1,500 per student, even if facilities were available 24 hours per day they would be considerably less expensive. Someone commented that university accommodation was superior in finish to that of the polytechnic. Mr. Foster agreed and explained that this was the result of the universities' legacy of older buildings. The same basis for costing was used for new polytechnic buildings and for new university accommodation. Asked why building plans did not include provision for easy expansion, Mr. Foster replied that this would be too costly and had often proved abortive because the future needs could not be predicted precisely.

R E James,
Chief Administrative Officer & Clerk to Governors, City of Leicester Polytechnic

THE CAO AND THE BUILDING PROJECT

"The functions of the DES in relation to Polytechnic building plans and projects have already been described in Mr. Fosters paper. Apart from any local constraints on polytechnic building which may be exercised by the local education authority from whom approval has to be sought, a major building project is subject to approval by the DES in terms of the justification for it, an expenditure limit, a schedule of accommodation, architects plans and a "starts" date. In considering the need for a particular project and the money to be allocated to it the DES is constrained by the total amount of capital allocation for educational building nationally determined for a particular year and the various polytechnic projects competing for a share of these funds. Perhaps we in the polytechnics and the local education authorities sometimes overlook the problems the DES has to face in this respect and show unjustifiable impatience or annoyance with the Department.

The ways in which the CAO is personally involved in functions relating to building projects differs in the various polytechnics. Therefore I shall widen my title to deal with "the polytechnic and the building project", looking at the process from the point of view of the polytechnic, and hopefully presenting the complementary view to that expressed by Mr. Foster.

conception of project

Normally a major building project will be conceived within a polytechnic as a stage in its physical development plan which in its turn will result from the academic development plan. While it is not my task in this paper to discuss in any detail the preparation of a development plan, it is relevant for me to make some comments on the development plan relating to building projects which arise from it. The plan will be made for a number of years ahead on a forecast basis, and, having regard to the polytechnic s general objectives, will project increases in student numbers, the development of existing and new courses over the period of the plan, research activities, the pattern of social life in the institution etc. It will contain a calculation of the floor area in existing accommodation and of the total floor areas for teaching and non-teaching purposes required to meet projected academic and support service developments in successive years calculated on the DES planning formula in "Design Note No. 8". From these two calculations and allowing for any existing accommodation which will be discarded, a framework of requirements for new projects can be produced. Naturally, a development plan, which is a forecast, requires to be reviewed and revised in the light of changing circumstances. Hence requirements beyond the early stages of

the plan, including building projects, can only be given in outline in the initial plan - their original conception can and probably will be changed.

It is therefore from the polytechnic's development plan, modified as it will be from time to time, that the timing of a particular major building project will normally arise. This timing may be affected by an opportunity to acquire a site or a building which would be suitable for a particular project.

Within each polytechnic established machinery exists for determining, within the broad development plan, when particular projects should be submitted for building programmes in order to achieve a certain stage in development. The Academic Board clearly has the responsibility for making such proposals to the Governing Body but it is likely that the Board will have a standing committee - with a title such as "Academic Development Committee" - whose tasks will be to consider new course proposals from the faculties and the resources required to establish them, to monitor changed circumstances which will necessitate modification of the overall development plan and to recommend new building projects to meet the various stages of development.

building programme stages

It is important for all concerned with the conception and preparation of building projects, and indeed for every member of the polytechnic community, to understand the various stages which have to be achieved before a project is finally included in a building programme, and the length of time which is involved in the whole process.

New procedures for educational building programmes were introduced by the DES in 1968 and subsequently modified in 1971. Essentially, instead of the previous system of annual programmes, there are now three phases leading up to the commencement of building operations: the "Preliminary List"; the "Design List" and the "Starts List". The Preliminary List is the first formal stage at which new building projects are identified by the DES. Inclusion of a project does not imply any firm commitment by the DES to a start in a particular year, although the project should be intended for a start within five years. According to the Department's present regulations, a project can be submitted at any time (having regard to the five year period) and will be added to the list when agreement has been reached with the DES on its justification.

Projects are eligible for transfer to the Design List when certain preparatory stages have been completed and they are sufficiently well in hand to give an assurance of smooth progress. The list consists of projects intended to start the following year. It therefore signifies a firm commitment, an intention that the remaining planning and preparation stages will go ahead to enable a start to be made the following year, and an estimate of cost. The local education authority is consulted about the progress of a scheme by the DES before it is placed in the Design List.

The Starts Programme is normally drawn up by the DES six months before the beginning of the programme year concerned. Normally, as indicated, it

consists of the promotion from the design list of projects on which satisfactory progress has been made and which are capable of being started in the year in question. Again, the local education authority is consulted before the inclusion of a project on the Starts List.

These DES building programme stages indicate the time scale which must be allowed for when the need for additional accommodation is being considered. For example, ignoring present building restrictions, if a project were submitted to the DES in January 1974 for the preliminary list, assuming it were accepted the earliest year it could be included in the design list would be 1975/6, and more probably 1976/7, and therefore in the starts programme for 1976/7 or 1977/8. Allowing two years for building work, completion would be 1978/9 or 1979/80, i. e. four to five years after the initial submission. This assumes, of course, that the project passes through the programme stages without a hold-up, in other words that it can be given the capital resources from the total programme amount available in the particular year to the DES in competition with other polytechnic projects.

procedures within polytechnic

Having outlined the building programme stages I may now turn to the procedures within the polytechnic for bringing a project from its original conception to the point where a contractor makes a start on the site. While a project for the preliminary list can be submitted to the DES at any time, a polytechnic may find it more convenient for planning purposes to think in terms of the projects it wishes to start in a particular year ahead in order to meet its anticipated development, and to have a regular date each year by which it makes its submissions for the preliminary list on this basis. Thus projects proposed to start in 1976/7 would have to be prepared in the necessary detail in order to reach the DES by the end of 1973; those to start in 1977/8 would normally be prepared for submission by the end of 1974. Such a timetable is based on the dates for submission prescribed by the DES for previous years when certain transitional arrangements were in operation.

(a) Submission for Preliminary List

It will be the responsibility of the Directorate or CAO to initiate, at the appropriate time, for consideration by the Academic Development Committee and hence the Academic Board, a new project for the preliminary list intended to start in a particular year and to supply the necessary information on which this consideration must be based. This information will include the purpose of the project, the number of FTE students for which the accommodation is to be provided, and broad details of the accommodation required. The Academic Board's recommendations with regard to a new project will go to the Governing Body and the proposal, if approved, will then require approval by the local education authority. It will be the LEA which then makes the formal submission to the DES for the inclusion of the project in the Preliminary List. At that stage certain details as prescribed by the DES have to accompany the submission

(i) justification and an indication in broad terms of what is to be provided,

(ii) detailed analysis on the prescribed form of existing and projected courses and student numbers in the academic areas concerned for five years ahead,

(iii) in certain circumstances, schedules of existing accommodation and details of any existing accommodation to be given up,

(iv) an estimate of the cost of adaptations to existing accommodation to be included in the project (this will involve prior consultation with the architects),

(v) statement on the availability of the site.

These details will have to be prepared in the polytechnics, probably under the direction of the CAO and supplied to the LEA for transmission to the DES. It should be noted that no estimate of cost is required at this stage but a provisional one will probably be required for local authority purposes.

The next development occurs once the project is included on the DES Preliminary List. At this time the DES fixes a provisional basic limit for expenditure for the project and may give a broad indication of how much accommodation in various categories - teaching, library, administration, staff workrooms, communal facilities, catering, staff research and balance area (circulation and ancillary accommodation) - the expenditure limit is intended to cover. However, this indication of accommodation is not prescriptive and the total area allowance can be distributed as thought fit by the polytechnic and the architect, provided the educational aims are complied with and expenditure kept within the limit fixed by the DES.

(b) Action and Stages after Inclusion in the Preliminary List

(i) After inclusion in the Preliminary List planning steps should go ahead in the polytechnic as soon as possible to ensure that sufficient progress is made to enable it to be transferred by the DES to the Design List and subsequently to the Starts List. The first steps are to ensure that the site will be available and to prepare a detailed brief for the architects, which should include a detailed schedule of accommodation required. In the case of a teaching building the necessary information will need to be supplied by the Departments concerned, possibly subject to consideration at Faculty Board level. For other kinds of project,

those with responsibility for the particular purpose for which the building will be used, e. g. the librarian or computer manager, will supply this information. Occasionally a standing committee of the Academic Board or the Governing Body may be concerned with the use of the building, e. g. for refectory provision or student housing, and in this case they too will be involved at this stage in the detailed planning. Whatever the internal procedure, there is much virtue in the information being supplied to the architects in a standardised form - a provisional schedule with the various areas listed under the categories of accommodation detailed earlier and a separate form for each room/ area giving details of features required.

Although the Education Department of the LEA may require to be involved in the planning process, the polytechnic normally deals directly with the architect at this stage, and the brief and planning details are submitted directly to him.

(ii) Having studied the details of the brief, the architect will normally request that meetings are arranged to clarify issues and to discuss aspects of the project. Within the polytechnic such meetings will be attended by a member of the Directorate, the CAO, the Heads of Department or other sections involved and probably the Buildings Officer, who, if there is such a post, is likely to act as the technical liaison officer between the polytechnic and the architects. It is desirable that the final form of the schedule of accommodation for the building is worked out in consultation with the architect's design team and the initial scheme may well be altered as a result of the consultations with the architect.

(iii) When the schedule has been agreed, having regard for the expenditure limit for the building and the area allowances for the various categories of accommodation to which the DES have regard in fixing this limit, the architects will proceed with the preparation of sketch plans. Further consultations with polytechnic representatives over various details of requirements will be held and before agreed sketch plans are arrived at the polytechnic will probably also consult the appropriate HM Inspector. There should also be consultation with the Architects and Building Branch of the DES to ensure that there will be no

major objections to the plans when they are later formally submitted to the Department. It may be the practice in the polytechnic for the Academic Board or its buildings sub-committee to examine the sketch plans as the final stage of their internal consideration.

(iv) The agreed schedule of accommodation and sketch plans are then submitted by the LEA to the DES for approval, together with particulars relating to break-downs of areas, estimated cost analysis and outline specification, as prescribed by the Department.

(v) Once the DES has approved the sketch plans, and any modifications necessary to meet their comments have been made, the Clerk to the Governors submits the plans to the Governing Body for approval, together with the Architect's final estimate of cost which will include the total gross cost of the building and site works and the amounts of quantity surveyors fees, consultant's fees and of architect's fees if a private architect is involved.

(vi) After approval by the Governors, the LEA must approve the scheme and it may pass through several local authority committees.

(vii) The final plans and the total estimated cost - in future the cost will need to be on tender figures - are then submitted to the DES for approval and authorisation to raise a loan to finance the project. The DES should not make major comments on the scheme at this late stage as any difficulties should have been sorted out in prior consultation.

(viii) By this time the architect will be engaged on detailed working drawings and the preparation of bills of quantity so that subject to final DES approval tenders can be invited and work programmed to start as early as possible in the year for which the project will have been included in the Starts Programme by the DES.

(ix) Invitation of tenders is normally undertaken by the architect. The acceptance of a tender - normally the lowest one - is a matter for the Governing Body of the polytechnic or its appropriate standing committee. After acceptance, contract documents are prepared by the architect and forwarded to the Town Clerk, Chief Executive or County Secretary for execution of the contract documents.

Owing to rising building costs and DES cost limits lagging behind them it is not unusual for the lowest tender to be in excess of the approved expenditure limit for the project. In such cases the architect, in consultation with polytechnic representatives investigates the possibility of amending the scheme in various detail so as to reduce the tender figure. If he cannot reduce the cost sufficiently in this way an approach will probably be made to the DES to ascertain whether the expenditure limit may be increased.* There might be a meeting of DES officers, architects, polytechnic representatives and LEA representatives. If the DES does agree to an increase, a further stage is necessary, before the tender can be accepted in obtaining the approval of the Governing Body and the LEA. Conversely, a refusal by the DES to increase the limit would necessitate a revision of the scheme and consequent delay in its commencement, perhaps even to the next programme year when additional money may be allocated by the DES.

progress on site

The progress of a building on site will be monitored by the architect, usually the LEA architect, who will allocate a Clerk of Works to maintain constant supervision. However, during the progress of the contract a number of issues will arise with which the polytechnic, through its CAO, will be concerned:

(a) Before work commences, an agreed programme will be settled by the architect with the contractor and this may demand close consultation with the polytechnic because of difficulties on the campus resulting from building work and the need to allocate space for the contractor's huts and materials. The "loss" of certain areas for building work may necessitate changes in pedestrian routes.

(b) Where the project includes adaptations to existing premises, the polytechnic will be involved in trying to arrive at a programme of work which causes least interference yet at the same time gives the contractor a reasonable timetable in terms of his labour force and delivery of materials.

(c) Matters of detail in relation to the provision to be made within the new building will arise. It is important that a central point of contact for discussion among the parties involved is established. This may be the CAO or Buildings Officer.

(d) Almost inevitably the polytechnic will request changes in the project after final plans have been agreed, and even after building work has begun. Any change involving additional expenditure above the approved limit is unlikely to be approved by the DES or LEA except in special circumstances. Normally, therefore, the deadline for major changes should be the final approval of plans by the polytechnic - before they go to the LEA and DES.

Otherwise the result will be abortive work and expenditure by the architect and a delay in progress. To what extent minor changes can be made subsequent to this will depend on the point to which the scheme has progressed and whether extra cost is involved.

(e) The LEA and the polytechnic i. e. the Buildings Officer, the CAO and the Directorate, the Academic Board and probably the Governing Body will require periodic progress reports on the scheme, and the progress should be monitored against a critical path analysis or flow chart on which the principal stages in a project and the timetable for them are marked. Pressure can then be exerted if necessary to get progress maintained on schedule, or, at least, the reasons for any delay can be ascertained at an early date. This critical path analysis and progress check may be undertaken as part of the LEA function, but I believe that a record within the polytechnic of the stages necessary in the project's history and the dates when they are achieved is a useful document and saves time spent searching for information in files and minute books.

furniture and equipment

At the appropriate time during the course of a project the schedule for furniture and equipment required will have to be compiled and presented for approval to the Governing Body and the LEA. This will be an administrative task, possibly performed by the Buildings Officer. Details will be obtained from departmental heads and others concerned and prices ascertained. Account will be taken of existing furniture and equipment to be transferred to the new building if it is to provide accommodation for an existing department. Several factors must be taken into account regarding equipment and furniture: the standard of the items to be provided - a matter of polytechnic policy; the total budget available for their purchase; delivery periods; the question of inviting tenders; the necessity for DES approval on items costing more than £1,000.

Consideration of likely total site requirements should be one of the first steps in producing a physical development plan for a polytechnic. I referred earlier to the gross additional floor area of accommodation which will be required for the projected student numbers, taking account of existing accommodation which will be retained. To this additional floor area a plot ratio factor is applied, i. e. floor area:site area (1:1 on open site, 1.5:1 on city centre site) to obtain the additional site requirements. To these must be added car parking requirements. The translation of these calculated site requirements into land earmarked for polytechnic development is, of course, a matter for negotiation between the Governing Body and the local authority. The object must be to ensure that appropriate sites are available when required for development and consequently that they are first of all designated by the local authority for polytechnic purposes and, secondly, acquired at the right time by the local authority if they are not already in its possession.

In many cases this may not be possible and therefore options must be kept open to allow different courses of action to be taken. Also, sites previously considered to be unavailable may suddenly become available. The polytechnic must initiate with the LEA whatever action is necessary to ensure that sites will be available at the right time, bearing in mind the length of time that the process of site acquisition takes, especially if compulsory purchase is necessary. The DES consider that it is reasonable to expect a site to be used within five years of purchase.

LEA capital programmes and financial estimates

Apart from the approval of the LEA being required to the plans and cost of a proposed building scheme during its final planning stages, there are two particular aspects of financial control and planning in relation to building projects which must be mentioned.

(a) The LEA Capital Programme

It is the practice for local authorities to prepare programmes of capital expenditure for several years ahead - maybe three or five - and for this programme to be revised annually to take account of changing circumstances. New building projects are a vital part of such a programme and the CAO must supply the best information available. Difficulties arise when the details required about a project five years ahead include not only an estimate of building costs, which can be calculated in provisional terms from DES formulas relating to student numbers, but also estimated costs of furniture and equipment and running costs. With a project that is five years ahead the accommodation to be provided in a building will not have been fully determined, nor even its final floor area. However, it is accepted that details for the later years of such a programme does serve a useful purpose for the polytechnic in requiring that the projected physical developments are reviewed each year and a further stage in development considered, even on a tentative basis.

(b) The Annual Rate Estimates

Although the inclusion of a project in the DES building programme and the LEA s Capital Programme may have been approved, it is still necessary for the CAO to ensure that provision for actual expenditure on the project is put forward for the rate estimates for the years involved. This demands provision in the estimates for: building work in each year - debt charges (amount to be spent determined in consultation with architects); architect's, quantity surveyor's and consultant's fees, if any - relevant to each year of the contract (part of debt charges); furniture and equipment - debt charges for year in which required; running costs from the time the building is complete, i. e. heating and lighting, insurance, maintenance and staffing.

minor capital works

For projects costing up to £50,000 (with a tolerance to £55,000), i.e. minor capital works, there is a different situation. The cost of these projects has to be met within an allocation made by the Local Education Authority to the polytechnic for such works each year. The individual projects do not have to be included in a DES building programme and do not require the approval of the DES. The procedure for the preparation of the schemes, plans and tenders is generally the same as for major projects.

present restrictions on building projects

The arrangements I have described in this talk with regard to the stages of the building programme and the procedures for the submission of projects to the DES have been affected in recent months by the Government's announcements with regard to the re-phasing of education building programmes. From October 1973, when the restrictions were first announced, to the 30th June 1974 the DES are giving no more final approvals to further and higher education building projects. For the year from 1st July 1974 to the 30th June 1975 a limited programme of such projects only will be eligible for approval to be announced later. Also, major projects have now to be submitted for approval at tender stage. The DES will be issuing in due course further guidance about procedures including cost arrangements for the year from 1st July 1974."

Discussion Arising

renting

Was it possible for accommodation to be rented instead of built so that academic development would not be held back by the time needed for building? Mr. James replied that this was quite feasible. The local authority did not need DES permission to rent or even purchase existing buildings. But care was necessary - the cost of conversion might in itself be a major work which would have to go into the DES building programme.

staff relationships

The comment was made that difficulties often arose because administrative staff did not understand the problems of academic staff and vice-versa. Teachers did not realise the constraints within which the polytechnic had to function and thus became frustrated when the CAO had to apply them. Mr. James added that the administrator should be regarded as a "facilitator"; and it was important for academic staff and administrators to understand the aims and roles of each other. He did not agree with a suggestion that it was necessary for the administrator to have had experience in the academic side of educational institutions.

Members met in syndicate groups for further discussion of visitors' contributions on Polytechnic courses and resource control.

Later five new syndicate groups were formed, one for each of the following topics:

(A) Committee Structures for the Academic Board

(B) Alternative Organisational Structures

(C) The Organisation of Staff Development

(D) The Organisation of Research in a Polytechnic

(E) Development of New Course Structures

(A) COMMITTEE STRUCTURES FOR THE ACADEMIC BOARD

M Emerson, Dean of John Dalton Faculty of Technology, Manchester Polytechnic.

Introduction

In introducing this topic, Mr. Emerson quoted from a paper by Colin Turner, staff tutor at Coombe Lodge (Coombe Lodge Report, Vol.5, No.13):

> "Colleges are involved, whether they like it or not, in a high degree of change. There are two main reasons for this. Firstly, the college is a service organisation to the rest of the society and therefore must be constantly adapting to it. Secondly, society is now in a state of permanent rapid change and there is no likelihood of a return to stability. The college therefore must be able to satisfy two demands made upon it. Firstly, it must consciously plan for change rather than just react haphazardly to changes forced on it. Secondly, it must be able to respond creatively to demands made upon it."

"Clearly the Academic Board and its sub-committees are important instruments for change and it is important to plan a committee structure with this in mind. The number of committees required and the extent to which they should be formal or informal should be borne in mind - a review mechanism might be necessary - many committees, or working parties might otherwise continue in existence long after they have ceased to be useful.

The terms of reference for committees of the Academic Board will need some consideration and the way they relate to those of the Academic Board. How far should the Academic Board delegate its powers? Should the committees have reporting briefs not only to the Academic Board, but elsewhere, e.g. to the staff as a whole?

Questions of membership relating to size and balance, student membership, non-academic staff membership, ex-officio membership, method of nomination/ election, powers of co-option, should all be considered in the light of the functions of the committees as embodied in their terms of reference.

What administrative servicing would committees need? A particularly important point here would be to define the systems information needed by a committee in order to function efficiently." Mr. Emerson suggested that the syndicate might concentrate their discussion on one or two types of committee, e.g. Research Committee, Learning Resources Committee, and discuss in more detail some of the points outlined above.

Mr. Emerson then turned attention to the need to distinguish clearly between two aspects of the work of committees: policy formulation and policy implementation, or decision-making. He argued that policies are the rules which guide decisions; the policy treats the general case, and should define, if only partially, how decisions are to be made. Committees need a feed-back system in order to review the effect of policy - does the expected result in fact occur? Are the decisions consistent with the policy? Mr. Emerson listed four characteristics of policies for the syndicate's consideration.

(a) freedom - the extent to which the policy determines the decision. Some policies fully define decisions and leave no room for manoeuvre; others simply establish a boundary within which decisions are made, with freedom to adjust the decisions both for reasons of personal preference and because circumstances may arise which were not foreseeable at the time the policy was made.

(b) accessibility - the extent to which the policy is known to the decision-maker.

(c) source - personal satisfaction varies according to the source of a policy and how the source is perceived; how far the policy is self-determined of imposed; how far staff implementing policy identify with the committee members and regard them as their representatives.

(d) consistency - inconsistency often arises when policy is formulated as a result of decisions which have already been taken. There are sometimes dangers in having policies which are retro-active in this way. Such policies often occur in institutions which have been formulated through the amalgamation of several colleges each with their individual histories.

Mr. Emerson concluded his briefing by summarising those characteristics of policies which favoured innovation and those which were suppressive of innovation. These should all be borne in mind, he argued, when determining the functions, compositions, and methods of working of the committee structures of the Academic Board.

Characteristics of Policies	
Favouring Individual Innovation	**Suppressive of Innovation**
accessible	completely defines action; states exactly what is to be done
clear	undeterminable; subject to future definition and retroactive application
not retroactive	imposed (on a "subordinate" for the benefit of a "superior)
source includes process which ensures some consensus by those affected	provides no guide for resolving conflicting pressures
part of a total policy system	internally inconsistent
objectives balance the interests of all	
clarity of forbidden action	
gives co-ordination without confinement	
policy making process separated from decision making process	

Syndicate Report

The syndicate reported that "it is the responsibility of the Academic Board to consider the academic policy of a polytechnic, to produce a plan to develop this policy and to monitor the academic activities of the institution. The Academic Board is concerned with the acceptance or otherwise of recommendations which have been formulated in its committees. This ensures that the activities of the Board are conducted in an efficient manner. It has the added advantage of increasing the range of participation in policy formulation throughout the institution since it is not envisaged that all its committees will be entirely composed of its own members".

Four main areas of activity were identified: learning resources and methods; research; academic forward planning; and procedural and general purposes. Each of these were thought by the group to constitute the basis for a committee.

The role and membership of these committees would be as follows:

(a) Learning Resources and Methods Committee - one third of members from the Academic Board, the remainder from other parts of the institution. To be responsible for the co-ordination of all central services.

(b) Research Committee - one third of members for the Academic Board, the remainder from other parts of the institution. To be responsible for the formulation of recommendations of policy relating to research and the implementation of such policy when agreed by the Academic Board.

(c) Academic Forward Planning Committee - members from Academic Board only. To be responsible for the formulation of academic policy, the development of a plan to implement this policy and its monitoring. This would involve an advisory role in the formulation of estimates.

(d) Procedural and General Purposes Committee - members from Academic Board only. To formulate procedures for dealing with incoming business and to decide on forward processing. This committee would act as an advisory body to the Chief Administrative Officer in the increasingly complex overlapping areas between academic and administrative matters.

The Syndicate noted that not all business should be generated by these committees and envisaged that the Academic Board would receive reports from individuals and units such as Staff Development or Course Development.

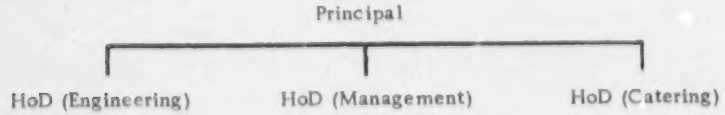
B. ALTERNATIVE ORGANISATIONAL STRUCTURES

A Albrecht,
Staff Tutor,
Coombe Lodge

Introduction

"The traditional technical college structure consisted of a Principal with Heads of Department for certain areas, usually consisting of a set of courses as shown below.

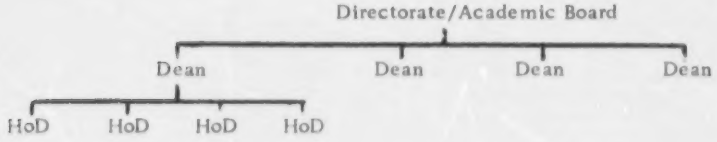
Diagram 1. Traditional Structure



The prime feature of the institution was to run courses with externally determined syllabuses. The Head of Department's main task was to organise and administer existing courses and, hopefully, add more. Other functions such as subject development, staff and student development, external relations and recruitment were subsidiary.

Since then, great developments have taken place, especially in the polytechnics, partly because of the expansion in size, but mainly because of changes in function: new subject and course areas have developed as old groupings become inappropriate; the nature of polytechnic activities has altered as the institutions become more concerned with the management of learning rather than teaching and the passing on of information; curriculum development has taken place internally, resulting in new course and disciplinary structures; new services have developed such as counselling, staff development and learning resource centres. Colleges are now concerned with curriculum development modular structures and more complex organisational structures are necessary. Polytechnics have responded in two ways to the new situation. The first is a modification of the traditional structure through the insertion of an extra management layer such as Deans of Faculties or Heads of Schools as demonstrated in Diagram 2.

Diagram 2. Development of Traditional Structure

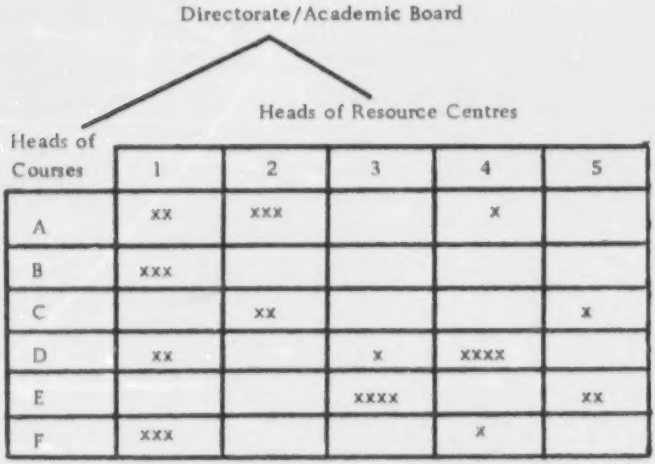


An obvious reason for adding another management level is to relieve the administrative load on particular individuals. There are many variations in the way the admininistrative duties can be divided: a Dean for example, may manage a group of related courses while the Head of Department might be the academic leader of a course group or a subject group.

A second alternative is the matrix structure. Many variations of this model are possible. One possibility is the structure which exists at Middlesex Polytechnic. Under this system the organisation recognises two main functional objectives. The first is the management of courses and responsibility for the students following these courses. The second functionis the management of resources, usually in subject groupings. Because there are two lines of functional responsibility at the same level (i.e. below Academic Board) it is necessary to specify in detail the responsibilities of each type of manager. To give a few examples, the Heads of Courses (or 'divisions') are responsible for the achievement of course objectives, implementation of approved patterns of examinations, selection and enrolment of students, and academic and personal welfare of students. The Heads of Resources (or 'Schools') are

responsible for such matters as subject development, staffing, library, laboratories and equipment, estimates, and so on. Under this system the concept of the 'department' disappears, and all courses are serviced from the various resource centres, as shown in the matrix (Diagram 3).

Diagram 3. Matrix Structure



In discussion, Syndicates should first look at the objectives of the management structure, and then analyse various structures to see whether they can achieve these objectives, possibly suggesting new types of structure."

Syndicate Report

Before considering alternative structures, the syndicate reviewed current organisational theory. Its main conclusions were:

(a) that the bureaucratic model was becoming increasingly inappropriate in a rapidly changing educated society,

(b) there was a need for an organisation to meet its technical demands and to meet the social and psychological needs of its members,

(c) organisations were becoming increasingly temporary,

(d) experiments should be carried out with new structures, and

(e) to meet all these requirements a range of collaborative skills must be developed.

The syndicate then considered organisational structures based upon departments. The problems identified were:

(a) in defining a department,

(b) those arising out of the disparity in size of departments,

(c) the difficulty of developing student centred courses,

(d) the danger of departments pursuing their own exclusive goals,

(e) the low esteem of service work,

(f) the vulnerability to changes in demand,

(g) the difficulty of compensating for a bad departmental head.

Members of the syndicate agreed that a department based structure was unsatisfactory.

The concept of a faculty based organisation raised several issues. What would be its internal organisation? A permanent head would be too powerful, a rotating one might lack commitment and cause discontinuity in the department. The faculty structure would, however, facilitate a wider range of courses than the departmental structure. A structure based on schools redefined the function of the department as being solely concerned with academic matters, administration and resources being the responsibility of the school. Its weakness was that it was too narrow to facilitate broad courses. However, it did give greater flexibility and a number of senior posts to award to staff concerned with courses. Schools could be arranged to be roughly of the same size, whereas faculties tended to be widely disparate.

The syndicate felt that the overwhelming advantage of the matrix structure was the separation of the administration from the operation and organisation of resources (including teaching), making possible two career paths, one in the organisation of teaching and course leadership, the other in the development of particular disciplines. The structure was essentially course-based, with activities designed to serve courses and students. It was flexible and could adapt to change. There were, however, considerable difficulties in introducing a matrix structure into an established organisation. Moreover, its successful operation demanded goodwill and harmonious working relationships and the collaborative skills these required.

Thus the syndicate concluded that there was no ideal organisation. Each college had to work out the structure which suited its particular situation and goals. Features which were desirable in any type of structure were that it should be course centred, that there should be opportunities for staff from different disciplines to work together, and that there should be small task-oriented groups.

(C) THE ORGANISATION OF STAFF DEVELOPMENT

T J Russell,
Staff Tutor,
Coombe Lodge

Introduction

"Staff development in FE has suffered more than its fair share of pompous preaching and pious platitudes so I will try to be to the point. The ACFHE document, like many others, treats staff development at a fairly broad, abstract level and contains lists and charts illustrating the kinds of activities which might be considered to be staff development. In practical terms, though, it contains little of concrete substance: I would suggest, therefore, that the syndicate should concentrate on the consideration of pragmatic details. I have identified three main areas of concern which might be examined, although the syndicate may focus on others.

(a) The Policy Level

Syndicates should consider the relationship between the policy-makers and the executive, or, to use Mr. Emerson's terminology, the policy-making and the decision-making structures. It is important to determine where policy on staff development should emanate from, and examine the relationship between the policy-makers for staff development and the policy-makers for the overall academic plan of the polytechnic. In my view, staff development policies are only a sub-set of polytechnic development policies. Only when the overall plan is settled can one consider what should be done in terms of staff development, for staff development consists of helping the staff become more able to carry out the polytechnic development policy. Consideration must be given to the resources which will be necessary for staff development to be carried out. One thus begins to examine the precise relationships between the policy makers and the executive - perhaps between the sub-committee of the Academic Board who may be identified as the policy makers, and the Heads of Department or the Deans, who may implement the policy.

(b) The Individual Level

It might be useful to examine, in closer detail, exactly what is done, by whom, when, and with whose knowledge. When you boil it down, staff development is concerned with the development of individual members of staff. Each individual requires his own staff development plan, and the overall staff development plan is the aggregation of the individual plans. At the individual level there are practical problems: how does the staff development plan get initiated; by what process do the individuals who are going to implement staff development actually work through the channels of decision making and arrive at a plan; how can the effectiveness of staff development be monitored and findings applied to future schemes?

(c) Appraisal

The appraisal of the needs and existing skills of the individual member of staff is vital, for any rational development plan for the institution links, very precisely, the knowledge and skills of the individual staff to the overall

aims and objectives. Appraisal is a delicate issue, however, and great care must be paid to the detail of how appraisal by line management, appraisal by whoever is charged with the personnel function, and self appraisal may be carried out in conjunction with each other. The problem is to create the appropriate attitudes of institutional support to its staff, and to ensure that these attitudes are communicated."

Syndicate Report

While acknowledging that problems existed in the field of staff development, the syndicate felt that all polytechnics should consciously devise a staff development policy. Staff development was a process which attempted to provide a base from which an individual would be willing to enhance his contribution to his role and increase his potential for undertaking future roles. Therefore staff development also embraced the difficult area of career development. It was important, too, that the staff development policy should aim to develop compatibility between personal aims and the organisational aims of the polytechnic.

The group agreed that no single individual had sole responsibility for staff development in the polytechnic. The individual's course leader, academic leader, Head of Department and the Directorate all had vital, and perhaps differing parts to play. These tasks were grouped under five headings:

(a) setting up, maintaining and disseminating information about the policy and system of staff development,

(b) identifying and analysing staff development needs,

(c) identifying and evaluating methods of meeting these needs,

(d) making resources available for the implementation of the chosen method,

(e) assessing the effects of the staff development policy.

While the responsibility for these items would vary to some extent with the nature of the Polytechnic's organisation and management structure, the group felt that the Directorate and Academic Board were responsible for all aspects of the system, particularly (a), (d) and (e), and that an officer in charge of staff development be responsible for initiating activities under (b) and (c) in conjunction with the Head of Department, course and academic leaders and the individual concerned.

The problem of allocating resources for staff development, especially where across-the-board resources were concerned might be solved by setting up a staff development sub-committee of the Academic Board, chaired perhaps by the Deputy Director (or whoever in the Directorial was responsible for staff development) and including the Staff Development Officer in an advisory role.

The syndicate made the following recommendations:

(a) Each polytechnic should consider the need for a staff development policy and system.

(b) A Staff Development Officer be appointed, his duties to be determined by the Academic Board.

(c) A Staff Development Sub-Committee of the Academic Board be set up to consider proposals and issues.

(d) Each polytechnic attempt to determine what resources it allocates to staff development.

(e) Criteria for determining staff development needs and resources allocation be drawn up and used in order to avoid conflict in discussion.

(f) Each Head of Department joins in preliminary and on-going discussion in the Staff Development sub-committee in order to develop an awareness of its relevance, methods and problems.

The syndicate concluded that here were no panaceas for dealing with staff development - each polytechnic had to find its own solution.

(D) THE ORGANISATION OF RESEARCH IN THE POLYTECHNIC

A Albrecht,
Staff Tutor,
Coombe Lodge

Introduction

"The Government's attitude to research in the polytechnic is expressed in Administrative Memorandum No.8/67. This document said that the main responsibility of the polytechnics would be as teaching institutions, but that it was necessary to make provision for research essential to the proper fulfilment of their teaching function and to maintain links with industry. Thus the tenor of the document was that research should have a very subsidiary role. It allowed that there should be some ad hoc research projects undertaken on behalf of industry or under contract from Research Councils, but they were to be undertaken without prejudice to other necessary work and without adding to the permanent staff establishment. Research assistants were not expected to be employed on any considerable scale although there might be post-graduate courses of study related to industrial needs.

In July 1973, the Secretary of State, Mrs. Thatcher, made the following statement in reply to the Parliamentary and Scientifical Committee of the House of Commons,

> "I have referred to the universities so far ..... but the polytechnics are also concerned with research. Their research will, however, as I see it, be different both in nature and degree. Undoubtedly they will engage in some fundamental research because in a few subject areas certain polytechnics may prove to be among the best places for this. But the polytechnics are, and will remain, primarily teaching institutions, and while it would be right that their staff should engage in research to strengthen their teaching abilities, I envisage the main research effort as being in a field of concern to industry, business and the public services, often in a regional, and even a local context."

With regard to developments between 1967 and 1974, there was an ATTI Survey in 1972/3 which discovered that there were over 1,000 staff engaged primarily on research in the 30 polytechnics, including 150 Fellows and Readers. Some polytechnics had over 100 research staff, although most research staff had some teaching commitment. Thus there has been some growth of research in polytechnics, but it is minimal compared to that in the universities. Postgraduate annual recurrent expenditure as a whole including resources allocated to research were £78 million in the universities in 1971/72 compared to only £5½ million in the polytechnics, according to figures given by the Arts and Education Sub Committee of the House of Commons Expenditure Committee. There is, of course, pressure from the polytechnics for more research. The Committee of Directors of Polytechnics in giving evidence to that same Committee complained about lack of funds for research and there have been many complaints of alleged bias in the Research Councils' allocation of funds. An example is illustrated in the table below showing SSRC post graduate awards.

Table 1. SSRC Post Graduate Awards (from SSRC Newsletter No.15 June 1972

	FE Sector	Total
Bursaries (1971-72) - number	382	635
Quota studentships (1971-72) number	4	1,229
Research Grants (1966-1967 to 1970-1971)		
- number	9	815
- average value	£3,336.	£7,680.

The Government's intention was that research in the polytechnics should be 'equal to, but different from' that of the universities. An article in 'New Society' (February 14th 1974) discussed a list of 27 research grants made to FE colleges by the SSRC from April 1966 to February 1972 found that their titles differed little from those of university research projects.

The present economic crisis has resulted in the Research Council's budget being cut by £6.4 million (4.5% approx.) . The FE/HE procurement expenditure has been cut by 10% and there is pressure on the Polytechnics and the AFE sector to apply student staff ratios - the Government would like to see an overall SSR of 10:1.

Thus the present situation is that the government has a certain policy regarding research in the polytechnics; the polytechnics themselves would like to do more research, but it is expensive, and there are liable to be constraints upon the resources available for it.

In order to discuss the organisation of research in the polytechnics, it is necessary to clarify the objectives of polytechnic research - is it to expand the frontiers of pure knowledge, to investigate practical problems in industry and the public service, to develop staff, or to give opportunities for students not previously catered for to carry out research activities? Any polytechnic policy will probably be an amalgamation of several of these objectives.

Several types of research organisation exist in the polytechnics. The ATTI has found that research is often spread over many specialist areas, and carried out by individuals or teams. This systems gives the greatest staff involvement but also results in duplication. If the resources are to be used most effectively it may be that the polytechnic should concentrate its research effort in a few limited fields, and thus build up a specialist expertise. The British Association for the Advancement of Science recently advocated the concept of 'centres of excellence' with particular institutions being the centre of excellence for certain fields of research. Naturally such a concept would have staffing implications - there would have to be some type of arrangement for secondment, for example. Within the institution itself, there is an attempt at Manchester Polytechnic to optimise the limited resources for research by having an Institute of Advanced Studies which co-ordinates the research effort by providing a central team, and acts as a 'back-up' service for particular pieces of research work taking place elsewhere in the polytechnic."

Syndicate Reports

The syndicate experienced some difficulty in arriving at a comprehensive definition of research, but suggested the following,

> "research is the process of enquiry into facts or fields which are apparently unknown."

It was agreed that research could be classified into three broad categories: pure research; applied research; and heteromorphic research. It was thought that the type of research should always be distinguished from the means by which the research could be achieved, e.g. industry based research.

The need for research was identified in the following areas:

(a) advancement of knowledge,

(b) the furtherance of teaching - by stimulation
- by development of the subject
- by the recruitment of inspired staff
- by the prospects of existing staff

(c) the advancement of the institution's prestige,

(d) the acquisition of equipment for undergraduate research,

(e) curriculum development,

(f) the teaching of research methodology,

(g) intercourse with industry,

(h) the mounting of post graduate courses

(i) the satisfaction of the requirements of outside bodies

The syndicate felt that the over-riding consideration was the improvement of the quality of teaching.

An attempt was made to quantify the cost element, as demonstrated in the following costing model:

A model for costing research effort

The annual cost (£) in terms of salaries is given by

$$\text{COST} = \frac{UZXW}{Y}$$

where, Z = total number of academic staff
Y = notional contact hours per week
X = fraction of staff engaged in research
W = notional research allowance in hours
U = average staff salary (excluding research assistants and fellows)

If, V = overhead fraction of total budget
P = average revenue expenditure per member of staff on research (£)
Q = estimate of cost of support staff per member of staff on research (£)
R = salary of research assistants and fellows (£)
F = support funds (e.g. SRC, SSRC, MRC, NERC or any other sponsor)

m = staff development
s = student staff ratio
c = student unit cost (5)

then annual budget of the polytechnic = Z.s.c (£)

and the total cost of research is approximately (£)

$$= m\left[\frac{UZXW}{Y}(1+V)+ZX(P+Q)+R-F\right]$$

If expressed as a percentage of the total polytechnic budget this becomes

$$= m\left[\frac{UZXW}{Y}(1+V)+ZX(P+Q)+R-F\right]\times\frac{100}{Z.s.c}\ \%$$

The syndicate discussed structures which would encourage a climate of research and enquiry, whilst maintaining control of the expenditure of resources and the monitoring of progress. Possible structures might have an Assistant Director responsible for and with authority for all research in the polytechnic; a Research Committee with similar responsibility and power; an Advisory Research Committee; a Controller of Research with advisory powers to the Research Committee; an Executive Assistant Director (Research) advised by the Research Committee.

The syndicate recommended that:

(a) research in polytechnics should be encouraged,

(b) research fields other than those mentioned by the former Secretary of State could be developed,

(c) a costing model should be used to control the use of resources and to promote a sense of cost awareness on a rational basis.

THE DEVELOPMENT OF NEW COURSE STRUCTURES

J Latcham,
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Introduction

"Contributions from Mr. Sandbach, Mrs. Ridler and Mr. Dudley will have stimulated many ideas for discussion in syndicate groups. I think, perhaps, there has been an emphasis on the historical aspect of course structures, so I would add a suggestion that syndicates think also about the pressures which exist for new patterns of courses: multi-disciplinary, modular, credit based and so on. Is there a need for these new course structures? Most courses at

present are subject orientated. Yet 'subjects' exist only for the convenience of teachers, and the convenience of teachers does not always match the needs of the student. Many polytechnics, looking more closely at the needs of the student, are proposing other types of structure. Syndicates should therefore consider what structure is most desirable, and what the consequence of opting for an alternative structure will be."

Syndicate Reports

The syndicate concentrated its attention on modular course structures. It felt that the modular system (both linear and branching forms) was in line with developments in secondary schools (the proposed N and F levels in five subjects, for example) and seemed to meet the recommendations in the White Paper for courses which are more broadly based than hitherto, and which allow delay of choice of specialist study.

The syndicate identified the following advantages and disadvantages of the modular system:

Advantages

(a) Tends towards the creation of more broadly-based course choice than the traditional system, although it is possible to combine broadly-based and narrowly based specialised systems by applying specific constraints on the students' choice of modules.

(b) Occupational choice is possibly increased, if a broadly-based course has been followed.

(c) Broadly-based courses in the early years of study give a student time to make experience-based decisions regarding the specialised study to be pursued in the later years of the course.

(d) A change in the direction of studies is possible.

(e) Students may leave a course and return to finish it later.

(f) Transfer (using a credit system) from one institution to another is feasible.

(g) Due to the increased freedom of selection of courses in a range of subject disciplines, there could be a more academic balance and a more even distribution of students among departments than exists in traditional course structures.

(h) An increase in inter-disciplinary relationships and co-operation should ensue.

(i) Stronger links could be forged with part time courses.

Disadvantages

(a) Fragmentation of programmes of study and a lack of academic continuity.

(b) Student/tutor relationships may not have time to be firmly established.

(c) Intensive individual guidance and counselling would be imperative.

(d) Staff teaching commitment from one term to another might be unpredictable where there is extensive freedom of module choice by students.

(e) Recognition of the system by some professional bodies may not be forthcoming - at least at the inception of the system.

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